

AMERICAN Railroad Journal.

ESTABLISHED 1831.

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SECOND QUARTO SERIES.—VOL. XXXVIII., No. 49.]

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CONSTRUCTION.

It is authoritatively stated that the Naugatuck Railroad, between Waterbury and Bridgeport, Conn., will have a double-track next spring. The road-bed will be prepared at once.

THE new Swedesboro and Woodstown Railroad, in Gloucester and Salem counties, New Jersey, is expected to be completed by December 15, and will be operated by the West Jersey Railroad.

THE St. Louis and San Francisco Railroad Company has accepted the terms of the Choctaw Nation, in the Indian Territory, and will immediately begin the construction of its road through the Choctaw lands. The Indians, it is said, "are becoming reconciled to railroads."

THE track of the Northern Pacific Railroad Company has been laid as far west as Livingstone, Montana, which is the end of the Yellowstone division, and trains are now running to that point. The distance from St. Paul to Livingstone is 1,031 miles, and from Superior City, on Lake Superior, 1,011 miles.

A COMPANY is being organized in Toronto, Canada, to build a railway along the edge of the Niagara River from Horseshoe Falls to Queenston, and also a railway from the edge of the river through a tunnel to the top of a high bluff in the rear of the Museum, and to own a park at Niagara Falls and Queenston.

F. DE FUNIAK, former general manager of the Louisville and Nashville Railroad, in a recent interview, said: "The Pensacola and Atlantic will be completed by February 1; 130 miles are already completed. In a few days we will reach the Ocoee River, where we will be delayed. By January 25 the bridge over the Apalachicola will be finished, and by February 1 through cars will be running from Savannah and Jacksonville to New Orleans. The Knoxville Branch will be finished by January 1, by which time we will reach the State line, and the East Tennessee, Virginia and Georgia will meet us there, as they have now only thirteen miles to lay."

THE Volga branch of the Chicago, Milwaukee and St. Paul Railway, from Turkey River Junction to Wadena, in Fayette county, Iowa, is being rapidly extended from Wadena to West Union. The grading is all done and ready for the rails. The track is laid within four miles of West Union, and the bridges are nearly all built. The trains will be running regularly by

December 15. It is proposed to further extend this road next season from West Union to intersect with the road formerly known as the Davenport and Northwestern, but now owned by the Chicago, Milwaukee and St. Paul Railway Company. This extension will strike the old Davenport and Northwestern at Hawkeye, in Fayette county. This extension will give the West Union people another road besides the Burlington, Cedar Rapids and Northern, and bring to the St. Paul Company business that they have never had a share of before; and, besides, make their Volga branch a paying part of their system.

PERSONAL.

C. HUTCHINSON, of New Orleans, has been elected president of the Houston and Texas Central Railway Company, vice Charles A. Whitney, deceased.

THE directors of the Northern Central Railway Company have appointed W. H. Joyce to be freight superintendent of the Baltimore division, and Samuel L. Seymour to be freight superintendent of the divisions between Marysville and Canandaigua.

THERE were on the special train which passed through Louisville, Ky., on the 5th inst., en route for San Francisco, via the new Southern Pacific line through Memphis and New Orleans, C. P. Huntington and Gen. Butterfield, of New York; T. W. Pierce, of Boston, and Charles Crocker and W. E. Brown, of San Francisco.

THE President has appointed John S. Pillsbury, of St. Paul, Minn.; Waterman Smith, of Manchester, N. H.; and William H. Comstock, of Utica, N. Y., commissioners to examine four and three-fifths miles of the Northern Pacific Railroad, crossing the Missouri River from Bismarck to Mandan, Dakota.

H. STANLEY GOODWIN, assistant general superintendent and engineer of the Lehigh Valley Railroad, has been elected general superintendent, vice Robert H. Sayre, resigned. A. W. Steadman was elected chief engineer. The office of assistant superintendent has been discontinued.

ARRANGEMENTS have been completed for the reorganization of the banking house of Drexel & Co., which will go into effect January 1. The house will consist of nine partners, and will continue to be known as Drexel & Co. in Philadelphia, and Drexel, Morgan & Co. in New York.

The five resident partners in Philadelphia are A. J. Drexel, F. A. Drexel, George D. Thomas, Edward T. Stotesbury and James W. Paul, Jr., and the four resident partners in New York, J. Pierrepont Morgan, E. T. Fabbri, J. Hood Wright and Charles H. Godfrey. These houses, with John H. Harjes and Eugene Winthrop, resident partners, compose the Paris firm of Drexel, Harjes & Co. The London correspondents are J. S. Morgan & Co.

ORGANIZATION.

At a meeting of the directors of the New Orleans and Northeastern Railroad Co. held in New Orleans on the 6th inst., E. M. Johnson, of Cincinnati, was elected president; John Scott, vice-president and general manager; F. Halin, treasurer, and W. Dunstan, secretary.

At the annual meeting of the stockholders of the Richmond and Petersburg Railroad Co., held in Richmond, Va., on the 5th inst., the following board of directors was elected: Fred. R. Scott, B. W. Hazall, Dr. D. W. Lassiter, H. K. Ellyson, W. T. Walters and R. R. Bridgers. President, Fred. R. Scott.

At the annual election for directors of the Syracuse, Binghamton and New York Railroad Company, Samuel Sloan, William E. Dodge, George Bliss, Percy R. Pyne, N. A. Murdock, Edgar S. Auchincloss, E. F. Holden, F. H. Gibbons, B. G. Clark, W. K. Niver, M. T. Pyne, A. D. Chambers, and Fred. F. Chambers were elected.

At the annual meeting of the Brooklyn Underground Railroad Company on the 29th ult., Eugene D. Berri, Henry Mumford, John French, James N. Balch, Samuel B. Duryea, Isaac H. Carey, J. M. Leavitt, George C. Barclay, Edward C. Freil, Benjamin T. Lynch, D. S. Baldwin, A. J. Nutting, and T. K. Horton were elected directors.

At the adjourned meeting of the Chesapeake and Delaware Canal Co., held in Philadelphia on the 5th inst., the following directors were elected: Andrew C. Gray, Charles H. Hutchinson, John F. Gilpin, L. V. Williamson, Edwin Swift, Mahon P. Hutchinson, John R. Baker, Gustavus S. Benson, Henry C. Ford, Joseph E. Gillingham, Robert M. Lewis, W. Drayton, Charles Chauncey, Edwin N. Benson and H. Pratt McKean. President, Andrew C. Gray.

At the annual meeting of the Great Northwestern Telegraph Company, held at Toronto, Canada, on the 29th ult., the following officers

and directors were re-elected for another year: President, Erastus Wiman; vice-president, William Gooderham; directors, O. S. Wood, Montreal; Hon. Wm. McDougall, C. B., Ottawa; D. H. Bates, New York; Adam Brown, Hamilton; James Hedly, Toronto; A. S. Irving, Toronto; Richard Fuller, Winnipeg and Hamilton.

At the annual election of the Iron Steamboat Company of New York, which is incorporated under the laws of the State of New Jersey, at the Central Hotel, Long Branch, N. J., on the 1st inst., the following board of directors was elected for the ensuing year: George S. Scott, Lewis May, George F. Baker, N. G. Miller, Charles E. Quincey, James D. Smith, Charles E. Loew, Samuel Carpenter, Washington E. Conner, R. M. Galloway, Rufus Hatch, G. P. Morosini and Amadee Vatable.

The directors of the New York and New England Railroad Company, elected on the 5th inst., are: James H. Wilson, William T. Hart, Henry L. Higginson, Jonas H. French and Eustace C. Fitz, of Boston; Le Grand B. Cannon, R. Suydam Grant, Jay Gould, Sidney Dillon, Cyrus W. Field, Hugh J. Jewett and Russell Sage, of New York; George B. Roberts, of Philadelphia; Jesse Metcalf, of Providence; W. F. Sales, of Saylesville, R. I.; F. J. Kingsbury, of Waterbury, Conn.; W. E. Barrows, of Willimantic; G. M. Landers, of New Britain, and William B. Franklin, superintendent of the Coats Manufacturing Company.

At the annual meeting of the Pittsburgh and Connellsville Railroad Company, held in Pittsburgh on the 4th inst., the following directors were elected: Robert Garrett, Mendes Cohen, Hugh Sisson, and Charles Webb, of Baltimore; W. J. Bissell, John D. Scully, George A. Berry, and C. L. Fitzhugh, of Pittsburgh; William Baldwin, of Connellsville; W. H. Markle, of Greensburg, Penn.; W. A. Koontz, of Somerset, Penn., and C. C. Markle, of West Newton, Penn. At a subsequent meeting of the directors Robert Garrett was chosen president and J. B. Washington secretary and treasurer.

INCORPORATION.

ARTICLES of incorporation were filed on the 2d inst., in the office of the Secretary of State at Albany, N. Y., of the Delhi and Hudson River Railroad Company; capital, \$475,000.

ARTICLES of incorporation were filed with the Secretary of State of California on the 24th ult., by the Fresno Street Railway Company. Directors: Edwin A. Rowe, D. R. Shaffer, William F. Rowe, Lewis Davis, John A. Graham. Capital stock, \$30,000, divided into 3,000 shares. Principal place of business, Fresno, California.

THE Albia, Carmi and Shawneetown Railway Company filed articles of incorporation in Springfield, Ill., on the 2d inst. The principal business office is located at Carmi, and the purpose of the company is to build a road from Olney to Shawneetown. The capital, \$1,000,000. The Effingham and Northwestern Railway Company, with a capital of \$200,000, also filed articles of incorporation. It is proposed to construct a road from Effingham to connect with the Toledo, Cincinnati and St. Louis Railway in Shelby county, Illinois.

Statement of the Public Debt of the United States, December 1, 1882.

DEBT BEARING INTEREST.		
	Amount Outstanding.	Accrued Interest.
5 per cent funded loan of 1881, continued at 3½ per cent.....	\$134,317,700 00	\$391,759 96
3 per cent loan of July 12, 1882.....	280,394,750 00	700,986 88
4½ per cent funded loan of 1891.....	250,000,000 00	2,812,500 00
4 per cent funded loan of 1907.....	738,940,700 00	4,926,271 33
4 per cent refunding certificates.....	413,650 00	2,757 67
3 per cent navy pension fund.....	14,000,000 00	175,000 00
Aggregate of debt bearing interest.....	\$1,418,066,800 00	\$9,009,275 84
Interest due and unpaid.....		1,644,032 73
DEBT ON WHICH INTEREST HAS CEASED SINCE MATURITY		
	Amount Outstanding, and unpaid.	Interest due and unpaid.
4½ to 6 per cent. old debt, 1837.....	\$57,665 00	\$64,174 81
5 per cent. Mexican indemnity stock, 1846-'52.....	1,104 91	85 74
6 per cent. bonds, 1847-'67.....	1,250 00	22 00
6 per cent. bounty land scrip, 1847-'49.....	3,275 00	213 06
5 per cent. Texas indemnity stock, 1850-'64.....	20,000 00	2,945 00
5 per cent. bonds, of 1858-'74.....	7,000 00	875 00
5 per cent. bonds, of 1860-'71.....	10,000 00	600 00
6 per cent. 5-20 bonds, 1862, called.....	365,550 00	7,707 03
6 per cent. 5-20 bonds, June 1864, called.....	50,400 00	994 40
6 per cent. 5-20 bonds, 1865, called.....	70,450 00	18,335 25
5 per cent. 10-40 bonds, 1864, called.....	289,850 00	42,815 67
6 per cent. Consol. bonds, 1865, called.....	368,900 00	12,131 61
6 per cent. Consol. bonds, 1867, called.....	817,300 00	109,874 01
6 per cent. Consol. bonds, 1868, called.....	250,500 00	20,822 24
6 per cent. loan, Feb. 8, 1861, matured Dec. 31, 1880.....	75,000 00	4,830 00
5 per cent. funded loan 1881, called.....	663,700 00	4,887 61
Oregon War Debt, March 2, 1861, matured July 1, 1881.....	8,800 00	1,558 50
6 per cent. loan of July 17 and Aug. 5, 1861, matured June 30, 1881.....	505,500 00	9,982 50
6 per cent. loan of July 17 and Aug. 5, 1861, continued at 3½ per cent, matured Dec. 24, 1881, called.....	3,007,300 00	38,074 39
6 per cent. loan of March 3, 1863, matured June 30, 1881.....	153,100 00	5,008 50
6 per cent. loan of March 3, 1863, continued at 3½ per cent, matured August 1, 1882, called.....	2,266,200 00	21,383 51
1-10 to 6 per cent. Treasury notes, prior to 1846.....	82,525 35	2,668 06
1-10 to 6 per cent. Treasury notes, 1846.....	5,900 00	200 60
6 per cent. Treasury notes, 1847.....	950 00	57 00
3 to 6 per cent. Treasury notes, 1857.....	1,700 00	99 00
6 per cent. Treasury notes, 1861.....	3,000 00	304 50
7 3-10 per cent. 3 years' Treasury notes, 1861.....	16,300 00	1,104 43
5 per cent. 1 year notes, 1863.....	41,505 00	2,087 35
5 per cent. 2 year notes, 1863.....	32,500 00	1,612 30
9 per cent. compound interest notes, 1863-64.....	218,270 00	44,612 01
7 3-10 per cent. 3 years' Treasury notes, 1864-65.....	138,600 00	20,391 60
6 per cent. certificates of indebtedness, 1862-63.....	4,000 00	253 48
4 to 6 per cent. temporary loan, 1864.....	2,960 00	244 19
3 per cent. certificates, called.....	5,000 00	394 31
Aggregate of debt on which interest has ceased since maturity.....	\$9,545,055 26	\$441,409 66
DEBT BEARING NO INTEREST.		
Demand notes, 1861-62.....	\$59,330 00	
Legal tender notes, 1862-63.....	346,681,016 00	
Certificates of Deposit.....	9,845,000 00	
Gold certificates, 1863 and 1882.....	35,408,540 00	
Silver certificates, 1878.....	73,095,660 00	
Unclaimed interest.....		\$5,339 96
Fractional currency, 1862, 1863 and 1864 \$15,398,548 17		
Less amount estimated as lost or destroyed, act of June, 21, 1879.....	8,375,934 00	
		7,022,614 17
Aggregate of debt bearing no interest.....	\$472,112,160 17	\$5,339 96

RECAPITULATION.

	Amount Outstanding.	Interest.
Debt bearing interest in coin, viz:		
Bonds at 5 per cent, continued at 3½ per cent.....	\$134,317,700 00	
Bonds at 4½ per cent.....	250,000,000 00	
Bonds at 4 per cent.....	738,940,700 00	
Bonds at 3 per cent.....	280,394,750 00	
Refunding certificates.....	413,650 00	
Navy pension fund, 3 p.c.....	14,000,000 00	
	\$1,418,066,800 00	\$10,653,308 57
Debt on which interest has ceased since maturity.....	9,545,055 26	441,409 66
Debt bearing no int., viz:		
Old demand and legal-tender notes.....	\$346,740,346 00	
Certificates of deposit.....	9,845,000 00	
Gold & silver certificates.....	108,504,200 00	
Fractional currency.....	7,022,614 17	
	\$472,112,160 17	
Unclaimed interest.....		5,339 96
	\$1,890,724,015 43	\$11,100,058 19
Total debt, principal and interest to date, including interest due and unpaid.....	\$1,910,824,073 62	
AMOUNT IN TREASURY.		
Interest due and unpaid.....	\$1,644,032 73	
Debt on which interest has ceased.....	9,545,055 26	
Interest thereon.....	441,409 66	
Gold and silver certificates.....	108,504,200 00	
U. S. notes held for redemption of certificates of deposit.....	9,845,000 00	
Cash balance available Dec. 1, 1882.....	157,887,476 28	
	\$287,867,173 93	
Debt, less am't in Treas'y Dec. 1, 1882.....	\$1,622,956,899 69	
Debt, less am't in Treasury Nov. 1, 1882.....	1,628,491,042 58	
Decrease of debt during the month.....	\$5,534,142 89	
Decrease of debt since June 30, 1882.....	\$65,957,561 03	
BONDS ISSUED TO THE PACIFIC RAILROAD COMPANIES, INTEREST PAYABLE IN LAWFUL MONEY.		
	Amount Outstanding.	Accrued Interest not paid.
Central Pacific bonds, 1862-64 \$25,885,120 00	\$25,885,120 00	\$647,128 00
Kansas Pacific bonds, 1862-64 6,303,000 00	6,303,000 00	157,575 00
Union Pacific bonds, 1862-64 27,236,512 00	27,236,512 00	680,912 80
Cent. Branch Union Pacific bonds, 1862-64.....	1,600,000 00	40,000 00
West'n Pacific Bonds, 1862-64 1,970,560 00	1,970,560 00	49,264 00
Sioux City & Pacific bonds, 1862-64.....	1,628,320 00	40,708 00
Totals.....	\$64,623,512 00	\$1,615,587 80
Interest paid by the United States, \$55,344,682.74; interest repaid by transportation of mails, &c., \$15,409,850.96; interest repaid by cash payments: 5 per cent net earnings, \$655,198.87; balance of interest paid by United States, \$39,279,632.91.		
The foregoing is a correct statement of the public debt, as appears from the books and Treasurer's returns in the Department at the close of business, November 30, 1882.		
CHARLES J. FOLGER, Secretary of the Treasury.		

A Trap for John Bull.

It will be remembered that a few weeks ago the connection of an English official, Sir Charles Rivers Wilson, with the Galveston and Eagle Pass Air-Line Railway Company, was the subject of comment in the British Parliament, the effect of which was the withdrawal of Sir Charles from the affairs of that Company. The *News* at the time called attention to the proceedings and waited further developments. Yesterday an English-printed prospectus, setting forth advantages and inducements to investors in the enterprise, was handed *The News*, together with a map showing the route of the line in bold and vigorous relief. The English prospectus is decidedly refreshing at this end of the project, and show "what fools we mortals be." At the head of the prospectus are the names of the Right Hon. Robert Lowe, Viscount Sherbrooke, and Sir Charles Rivers Wilson, K. E. M. G., C. B., who "have agreed to act as trustees in London for the bondholders during the construction of the railway, and the whole proceeds of the bonds will be paid to their bankers in London, the London Pro-

visional Bank of England, limited." The late proceedings in Parliament show that the use of these names is genuine, at least as far as that of Sir Charles Rivers Wilson is concerned, and doubtless that of Viscount Sherbrooke appears in legitimate form. As the Right Hon. Robt. Lowe is an ex-chancellor of the exchequer, his standing in financial circles is of value, and hence the importance of such indorsement. The scheme may have been undertaken in perfect good faith by those who were working it up—as far as the names quoted are concerned, undoubtedly so—but this is a world of very large margins. "A deed of mortgage," says the prospectus, "has been executed between the Galveston and Eagle Pass Air-Line Railway Company and the Mercantile Trust Company of New York, whereby the bonds of this issue are charged as a first mortgage on the entire railroad as constructed, its equipment, revenues, franchises and other property, including the whole of the State land grant, to which the company will become entitled, amounting to 102,400 acres for every ten miles of road completed and put into good running order, or altogether to about 3,584,000 acres." As land is scarce in England figures like these would be apt to catch the public eye. If the party or parties in England working up the scheme knew nothing of it they certainly ought to have known that the land grant act of Texas has been practically annulled, and that there is no land in the State now remaining that can be given to any such enterprise. As the prospectus bears date of November 2, 1882, this information ought to have been at the command of the "engineers." This, in connection with the fact that the accompanying map shows a certain portion of the line, from Columbia to Wharton, "ready for permanent way," whatever that may mean, indicates crookedness in some quarter or another. If any work has ever been done upon this enterprise, *The News* is not aware of it. The whole route marked out is "ready for permanent way," for that matter, but the permanency of the plan is not well developed as far as heard from. It is understood that a party of Englishmen were recently in New York who came out to look into the project, and perhaps their observations on this side of the water may have inspired recent parliamentary comment on the subject, although Sir Charles Rivers Wilson retired from the concern declaring his belief in the entire solidity of the enterprise. How it is with the Right Hon. Robert Lowe *The News* has not yet learned. It is strange, however, how such names could be used in the furtherance of any project without first investigating every important detail. *The News* takes occasion to say that the Texas land grant law is practically abolished, in consequence of exhaustion of the landed domain of the State, and that not an acre of land is to be expected from this source. The public at large is entitled to this information, for the honor of the State and the protection of individuals. A couple of experts well known in Galveston in connection with "the art of railroading" are credited with the brain power in this paper railroad scheme. Viscount Sherbrooke and Sir Charles Rivers Wilson ought to hold themselves more thoroughly in reserve,

for "what fools we mortals be!"—*Galveston News*, Nov. 28.

Boston and Maine Railroad.

THE receipts of the Boston and Maine Railroad Company for the years ending September 30, 1881 and 1882, were as follows:—

	1881.	1882.
From passengers.....	\$1,489,534 49	\$1,593,117 02
From freight.....	1,018,857 01	1,079,424 90
From mails.....	23,663 92	24,489 54
From express.....	69,159 98	71,294 28
From rents, etc.....	66,030 51	68,715 74
From interest.....	20,270 07	18,688 74
	\$2,687,515 98	\$2,850,730 22

Expenses:

Repairs of road.....	158,207 12	167,070 80
Repairs of bridges.....	30,397 46	37,700 81
Repairs of fences, etc.....	11,364 64	11,026 40
Repairs of buildings.....	85,549 15	86,762 91
New buildings.....	16,381 76	10,803 55
Repairs of locomotives.....	74,281 76	47,631 79
New locomotives.....	36,280 07	36,280 01
Repairs of cars.....	83,511 98	96,224 35
New cars.....	83,343 49	69,514 48
Fuel and water.....	231,425 26	244,755 07
Oil and waste.....	12,914 75	14,566 87
Renewal of ties.....	22,415 48	15,778 51
Renewal of rails.....	41,607 29	57,689 18
Insurance.....	6,410 00	6,600 00
Taxes.....	96,589 84	133,492 43
Salaries of officers and clerks.....	47,686 22	49,282 48
Legal expenses.....	4,844 93	17,731 47
Stationery and printing.....	18,773 42	18,077 40
Outside agencies and advertising.....	14,974 55	18,286 79
Contingencies and miscellaneous.....	18,097 66	12,861 16
Dover and Winnepesaukee Railroad rent.....	29,000 00	29,000 00
West Amesbury Railroad rent.....	5,700 00	5,700 00
Lowell and Andover Railroad rent.....	52,500 00	52,500 00
Locomotive service.....	120,148 90	124,517 92
Passenger train service.....	65,403 05	66,580 78
Passenger train supplies.....	9,540 30	8,577 35
Freight train service.....	35,592 96	37,991 29
Freight train supplies.....	2,041 61	1,378 49
Freight train mileage.....	2,668 98	12,324 80
Telegraph.....	7,535 45	8,463 27
Loss and damage.....	3,099 84	3,224 97
Personal injuries.....	9,297 36	41,826 36
Agents and station service.....	301,134 07	317,235 31
Station supplies.....	14,323 43	27,777 82
Balance of improvement account charged to expenses above the sum reserved.....	64,433 03	68,576 72
	\$1,814,289 56	\$2,017,057 56

Leaving as net earnings..... \$873,226 42 \$833,672 66

From which deduct—

Interest on bonds.....	\$246,632 59	\$245,000 00
Dividend 4 per cent May.....	280,000 00	280,000 00
Dividend 4 per cent Nov.....	280,000 00	280,000 00
Amount reserved for double track and other purposes.....	65,000 00	.....
	\$871,632 59	\$805,000 00
Surplus.....	\$1,593 83	\$28,672 66

Compared with the year 1881, the gross receipts of 1882 show an increase of \$163,214.24, and the net balance applicable to dividends a decrease of \$37,921.17. This decrease, the report says, is more than accounted for by the increased expenditures for steel rails, \$16,081; ties, \$29,363; taxes, \$36,902; and personal injuries, \$32,529 (including the accident of January 2)—making in these items alone an aggregate of \$114,875 the present year over the previous year.

At the commencement of the year the company had 84 locomotives; during the year three new passenger locomotives were built in the company's shops, one of which took the place of an old one, and two were in addition to the former number, making the number at the close of the year 86. Another large and powerful locomotive for freight is in process of construction, and will be ready for service in a few weeks.

The company have also 182 passenger and

baggage, and 1,949 merchandise and other cars, and 12 snow ploughs; of these 2 parlor, 5 first-class passenger, 2 combined passenger and baggage, and 47 freight cars have been built in the company's shops at Lawrence during the year. One parlor car has been purchased, and of 50 freight cars under contract 25 have been delivered.

The second track has been extended from East Kingston to Exeter, $4\frac{1}{2}$ miles, and from a point $4\frac{1}{2}$ miles west of Portland to Scarborough, $2\frac{1}{2}$ miles. During the year 1,803 tons of steel rails and 32 tons of iron rails were laid down, of which 531 tons of the steel rails were laid in the new second track. There were also laid 141,405 ties in addition to those used in the new second track, being 77,429 in excess of last year.

New side tracks have been laid at Prison Point, Oak Grove, Edgeworth, Haverhill, Madbury, Wells, Biddeford, Old Orchard, and Portland, aggregating 4.064 miles.

The number of passengers carried during the year was 5,984,000, against 5,325,375 in 1881, an increase of 658,625; the number carried one mile was 81,641,541, against 74,968,911 in 1881, an increase of 6,672,630. The number of tons of merchandise carried was 904,966, against 842,604 in 1881, an increase of 62,362; the number carried one mile was 44,882,394, against 41,889,660 in 1881, an increase of 2,992,734. The number of miles run was 1,945,599, against 1,854,048 in 1881, an increase of 91,551.

TREASURER'S TRIAL BALANCE, SEPTEMBER 30, 1882.

	1881.	1882.
Construction.....	\$9,508,753 96	\$9,512,785 26
Equipment.....	1,242,230 00	1,242,230 00
Materials on hand.....	197,175 01	216,180 44
Cash.....	135,983 12	222,613 69
Notes receivable.....	172,219 75	86,200 43
Land and improvements		
Dover and Winnepesaukee Railroad.....	26,603 23	26,603 23
Dover and Winnepesaukee Railroad stock.....	263,144 48	263,144 48
Steamer Mt. Washington and wharves.....	69,260 24	69,260 24
Danvers Railroad bonds.....	125,000 00	125,000 00
Danvers Railroad account	27,430 00	27,430 00
Lowell and Andover Railroad betterments.....	58,624 42	58,774 42
Newburyport Railroad stock and bonds.....	302,001 95	302,001 95
Portland and Rochester Railroad.....	.....	118,919 75
Due from station agents.....	.....	80,764 98
Miller's River improvement.....	.....	17,976 34
Land near State Prison, Charlestown.....	.....	23,487 71
Total.....	\$12,128,426 16	\$12,393,667 92
Capital stock.....	\$6,921,274 52	\$6,921,274 52
Seven per cent bonds due 1893.....	1,500,000 00	1,500,000 00
Seven per cent bonds due 1894.....	2,000,000 00	2,000,000 00
Notes payable.....	580 00	100,000 00
Lowell and Andover Railroad improvement acct.....	5,268 03	4,434 43
Uncalled-for bond interest	8,855 00	7,087 50
Uncalled-for dividends.....	14,764 00	17,349 00
Accounts payable and pay rolls for September.....	.....	175,534 14
Ledger balances.....	3,935 14	30,486 20
Profit and loss.....	1,673,829 47	1,637,502 13
Total, as above.....	\$12,128,426 16	\$12,393,667 92

President.—GEORGE C. LORD.

Directors.—George C. Lord, Nathaniel G. White, Amos Paul, Nathaniel J. Bradlee, William S. Stevens, James R. Nichols, John Felt, Osgood, Samuel E. Spring, Nathaniel W. Farwell.

Treasurer.—AMOS BLANCHARD.

Gen'l Supt.—JAMES T. FURBER.

Auditor.—W. H. B. WIGHTMAN.

Clerk.—CHAUNCEY P. JUDD.

AMERICAN Railroad Journal

ESTABLISHED 1881.

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GEO. F. SWAIN, *President.*
S. PROCTOR THAYER, *Vice-President.*
EDW. A. WRIGHT, *Treasurer.*
CHAS. T. VALENTINE, *Secretary.*

JULIUS C. SHAILER,
GENERAL EASTERN AGENT, with Headquarters at
Main Office.

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We invite railroad officers to send us notice of elec-
tions, transfers, appointments, resignations, etc.; and
all our readers would oblige us by furnishing for our
columns any items of personal information, which may
come to their knowledge, and are adapted to this de-
partment. We aim to record all new railway enter-
prises in the United States and Canada, and to note
the progress of construction on all new roads and exten-
sions; and we request all concerned in railway building
to give us early information regarding the above, that
our reports may be as complete as possible.

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Contributed articles relating to Railroad matters gen-
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those who are familiar with these subjects, are especial-
ly desired.

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COPIES of this JOURNAL are occasionally dis-
tributed as an advertisement, and should not
be returned to the office. The proper use for
them is their thorough examination, which will
result in business to the publishers.

FROM THE CHESAPEAKE TO THE GULF AND PACIFIC.

THE far-reaching plans of the Southern Pa-
cific Railroad managers are unfolding
themselves to the public view. President LE-
LAND STANFORD, of the Central Pacific, who is
also one of the principal promoters of the
Southern Pacific, recently arrived in New York,
having made the trip from San Francisco by
way of the Southern Pacific and Texas Pacific
routes, was interviewed while in Louisville, and
is reported to have stated that within a few
months there will be a continuous line of rail-
road from San Francisco, the dominant harbor
on the Pacific coast, to the mouth of the Ches-
apeake Bay, which offers a similar harbor on the
Atlantic coast, all of which will be under con-
trol of the Southern Pacific California syndi-
cate. Mr. STANFORD's own trip did not follow
the proposed line, but departed from it at
Sierra Blanca, one hundred miles east of El
Paso, and thence across Texas and Arkansas
to St. Louis, from St. Louis to Louisville by
the new "Air line," and thence over the Ches-
apeake and Ohio to Washington.

What may be called the "Huntington" lines
from San Francisco eastward, will be over the
Southern Pacific to El Paso, from El Paso to
New Orleans by the way of San Antonio, and
from New Orleans to Memphis over the Mis-
sissippi Valley Railroad, now under course of
construction via Baton Rouge and Vicksburg,
and to be completed by the end of 1883. At
Memphis it intersects the completed Ches-
apeake and Ohio system, over which continuous
trains are now running to Washington, Rich-
mond and Fortress Monroe, at the entrance of
Chesapeake Bay. This line via the Gulf coast
will be somewhat longer than the other overland
lines from New York and North-Atlantic cities;
but it has the great advantage of being the
shortest line on United States territory between
the two oceans. The distance from San Fran-
cisco to New Orleans will be 2,450 miles, and
from San Pedro Bay to Galveston 1,700 miles;
and over the latter route it is expected that
quantities of Oregon wheat, salmon and wool
will be handled for shipment to Europe.

A short cut-off is now being surveyed from
Vermillionville, in Louisiana, to the Mississip-
pi at Baton Rouge, a distance of 50 miles. It
is not certain which of the two roads from Ver-
millionville to New Orleans will be used, both
being of about equal length, and running

through an almost dead level country. But for
business destined to points in Tennessee and
eastward the Baton Rouge cut-off will save
about 200 miles of carriage. As a through
passenger route it will probably make the same
time as the other southern routes by way of St.
Louis and Kansas City, the grades being much
lighter throughout, and it will enable the pas-
senger to stop off at Washington, Louisville,
Memphis, New Orleans or San Antonio, and to
pass through the famous semi-tropical Califor-
nia country around Los Angeles. In winter
particularly the line will be exempt from ex-
treme cold weather, and snow blockades, and
may be preferred on that account.

The Texas Pacific line between El Paso and
New Orleans has been opened several weeks,
and the "Sunset," or San Antonio line, is
to be opened within a few days. Mr. CHARLES
CROCKER, President of the Southern Pacific,
and Mr. T. W. PRIBOR, President of the Galves-
ton, Harrisburg and San Antonio Co., are to
meet at the gap in West Texas to open the new
line December 10th, and Mr. CROCKER will
make a continuous trip from New Orleans to
San Francisco over the road.

The prospects are, therefore, that the seem-
ingly impossible dream of ambitious railroad
men a few years ago, of a continuous line of
railroad from the Atlantic to the Pacific (some
4,000 miles in length) is first to be realized by
the daring and astute railroad managers of Cal-
ifornia. And it is a notable fact that by far a
greater part of this line has been built under
the direct management and supervision of these
parties themselves; only a small portion of it
being composed of fragments of older roads
incorporated.

In this connection it is well to remember
that the Southern Pacific will have a loop, or
duplicating short line by way of St. Louis.
The thirty-fifth parallel route, consisting of the
Atlantic and Pacific and St. Louis and San
Francisco railroads when completed, is also
controlled by the Southern Pacific managers,
as much as by any one, and the line from St.
Louis eastward to Louisville is all that remains
to be acquired to form a very direct line from
the Chesapeake to San Francisco as direct as
the pioneer line by way of Chicago and Salt
Lake.

When the Northern Pacific Railroad shall be
completed from St. Paul and the head of Lake
Superior to Puget Sound in Washington Terri-
tory, it will present the spectacle of a line of
2,000 miles of railroad under one company and
in one management; but this achievement,
stupendous as it would have been regarded a
few years ago, is dwarfed by the consummation
of the Southern Pacific of 2,400 miles between

San Francisco and New Orleans, to say nothing of the extension east of the Mississippi 1,700 miles further from New Orleans to the Chesapeake.

It is understood that the Chesapeake and Ohio will have its freight terminus at Newport News or Hampton Roads (opposite Norfolk) and its northeastern passenger terminus at Washington, to which it will have its own line, if suitable running rights cannot be obtained over one of the two lines entering Washington from the South. From Washington City it is manifest there will soon be two competing parallel lines north to Baltimore, Philadelphia and New York, and over one of these two the through business of the Chesapeake and Ohio will be done. Already the application of this company to be admitted to the trunk line pool on passenger business between New York and Cincinnati, Louisville and St. Louis, has been conceded on the most favorable footing. The career of this new candidate for southwestern and far-western business begins to open up and show something of the greatness of its future possibilities.

RAILROAD CASUALTIES.

CAN nothing be done to check the slaughter of persons on railroads? Railroad accidents, as they are called, are increasing in frequency and in horror. Not a day but brings account of one or more dreadful collisions between trains, in which cars are overturned or smashed up, and in which numbers are injured or killed outright. The increase of casualties is out of all proportion to the increase in mileage operated; though perhaps not beyond the increase in railroad travel. A noticeable amount of accidents fatal to railroad employes has appeared of late. The bulk of these accidents are traceable to three causes: collisions, derailments, and break down of bridges or trestles. An element of human carelessness, either in construction, maintenance or management, lies, of course, at the bottom of these mishaps; excepting always that small proportion of railroad accidents which is due to malice, and which has become alarmingly frequent of late.

Obviously, where we have 100,000 miles or more of single-track railroad on this continent, collisions will sometimes occur even upon the best-managed roads, from the neglect, stupidity, drunkenness, or disobedience of orders by employes. It, however, happens that unpreventable accidents, such as the breaking of an axle or wheel, or the parting of the train, will sometimes so disturb and interfere with the theoretic regulation of the road as to induce a second and more serious disaster. These are among

the risks that travelers by rail will have to incur for a long time. But there are other classes clearly of a preventable character which ought to receive more attention from railroad owners than they do. We say from owners with purpose, inasmuch as we distrust the efficiency of statutory and penal enactments. There is no precaution like that exercised by intelligent self-interest. It is not for the advantage of railroad owners or officers that accidents should occur, nor have they any direct interest in what may be called reckless or hazardous handling of their trains. It is for their benefit to do the best they can; but the inquiry arises why that best should not be still better than it is.

Two or three plans for a reform suggest themselves: first, as to the selection of superintendents and chief engineers. Good men are scarce; and it is possible that an indifferent officer may learn from his own mistakes, and afterward turn out to be a proficient. At present, however, a superintendent dismissed for incompetence or bad habits, usually has nothing to do but to apply to a neighbor, and perhaps a rival, railroad president, to secure employment of the same kind; and sometimes with larger responsibilities than in the position he had just vacated. The railroad superintendents themselves carry great responsibilities; and although it is the ambition of nearly all subordinates in the operating department to attain to that distinction, the superintendent or general manager of a railroad has no easy task, and none but able-bodied, clear-headed men should be appointed to it. The superintendents have recently, at a meeting in this city, adopted a regulation or understanding among themselves, that subordinates—such as trainmen, trackmen, machinery men, and purchasing and supply agents—should not be employed unless they can show that they have left their late position for good or honorable cause. Heretofore, the threat of discharge for misdemeanor had no terrors for the average employe—engineers, conductors, brakemen, and the like—as fresh places were to be had on neighboring roads with scarcely a delay, and sometimes with promotion. The result was demoralizing; it frequently happening that two roads situated in the same territory were hiring the discharged hands of each other without any betterment in the service of either. This power of giving or withholding a recommendation is an important one, which must be lodged somewhere, but like all other powers it is capable of being abused so as to become one of vast tyranny and oppression.

Another prolific cause for the large number of casualties on railroads may be attributed

to the use of intoxicating liquors as a beverage. Most of the older roads in the East have a rule that none of the trainmen shall indulge in drinks of this kind during hours of service. This is only a sanitary provision, but it really is not broad enough to meet the case. It is often, and sometimes notoriously and openly, evaded without fear of evil consequences. A man may, however, abstain during his hours of labor, and be besotted in the interval, or a night's debauch may totally unfit him for a task requiring steady nerves, clear eyes, and calm brain the following day. Some premium should be put upon habitual sobriety, and some certain penalty should follow those who are addicted to the use of spiritous liquors to excess at any time. Railroad employes should be taught in this and other ways that those who are concerned in the transportation of passengers have a weight of responsibility resting upon them which is inconsistent with intemperate habits. Railroad and executive officers can render a great service to the community by themselves setting an example; and, by weeding out frequently, by admonitions, and if necessary suspensions and expulsions of the unsteady, make plain to them the gravity of the duty they are required to perform, and the enormity, under the circumstances, of their offense.

Taken at large, no doubt the railroad service of the country is fully equal, and even superior, to the labor employed in any other like industry of great magnitude. Railroad companies have less difficulty than other corporations in supplying themselves with needed help of all descriptions. The steadiness of the employment, the certainty and promptness of pay, and a fellow feeling akin to that which the soldier acquires for his old company and regiment, are more attractive to floating labor. Superintendents might take advantage of this to recruit their ranks from the better, and not from the worse, classes of society.

It has happened on some of our most prominent and most lucrative trunk lines, which are declaring large dividends to their owners, that inexperienced boys have been converted into trainmen, and superannuated signal men, who should be on the retired list, have been kept at responsible posts, upon very meagre wages, apparently on no other ground than economy. Of course inefficient help is not in the long run economical. Stockholders and presidents who insist upon, or abet their superintendents in cutting down the payrolls so as to deteriorate the force, are the reverse of economical. Good men should be chosen for weighty and trusty positions, and their pay should have some pro

portion to their responsibility, to their risk, and to their length of service.

As for the class of accidents caused by placing obstructions on the track, throwing missiles at cars, or train robberies, they are high crimes to be punished at any cost. Railroad and express companies should hunt these miscreants down as enemies of the human race, like pirates and highwaymen, whose trade must be broken up for the security of the public.

RAILROAD MEDICAL SERVICE.

[Continuation of the French System.]

BY S. S. HERRICK, M. D.

SECRETARY OF BOARD OF HEALTH, STATE OF LOUISIANA.

MEDICAL ATTENDANCE.

EVERY employé or workman in the company's service, including the females just mentioned, is entitled to medical relief (both attendance and medicines), in case of injury or sickness, except under circumstances hereafter to be mentioned.

When an employé or workman declares himself ill, or is reported absent by reason of sickness, his foreman gives to him, or sends to the physician, a ticket of attendance, detached from a record-stub, and joins to it a pass over the road in case the patient lives far from the physician's station. This ticket, without which no one, save in extreme emergency, can claim a physician's attendance, is handed to the latter, who fills and signs coupon A, detaches and sends it to the man's foreman. The latter copies the inscription of this coupon on the stub and gives it back to the patient when he is to return to the doctor, so that he may be recognized.

Every day, at a fixed hour, the physicians receive these patients at the station-house, if there is a suitable consulting-room there, otherwise at their own offices. The physicians record daily upon a case-book (form 1,356) the names, occupations and residences of the out-patients, the nature and cause of their sickness, the remedies prescribed, the expected duration, and, after cure, the actual duration of disability for work. Finally they add such observations as they deem useful to the patients and to the service in general. This record governs and facilitates any future reference by the administration. It is examined by the physician-in-chief at every tour of inspection.

When an employé, reported sick, is unable to leave the house, the ticket of attendance inscribed "at domicile," with its precise location, is immediately dispatched to the physician, who then attends the patient at his own residence. In case the physician decides that treatment in a hospital is advisable, the patient has the option of home attendance at his own expense. On admission to hospital, the physician, or in his absence the patient's foreman, sends to the hospital steward a ticket (form 1,355) stating simply the name, occupation and residence of the sick man.

On his discharge from treatment, the employé should have his condition authenticated

by the company's physician, who sends directly and under seal to his foreman coupon B of the ticket of attendance, with the necessary particulars. Without this formality the cost of the sickness cannot be paid. Under no pretext must the company's physician give such a certificate directly to the employé.

Every explanatory certificate and medical report should be examined by the physician-in-chief, before forwarding the same to the foreman who requires it. In a case of severe illness or injury, a company's physician may ask the aid and counsel of his colleagues in the adjoining sections; or in emergency may call on a private physician; but an account of the same must be rendered to the physician-in-chief.

An employé has the option of attendance by a private physician at his own expense. In an emergency acknowledged and certified by the man's foreman, when the company's physician cannot attend, the private physician's bill should be approved and signed by the foreman and physician of the section, and then addressed to the physician-in-chief, who submits it to the administration. In any case all such claim for fees ceases from the moment the company's physician is ready to attend the patient.

Medical and pecuniary relief for sickness or injury is limited to three months. Beyond this the administration, on the motion of the directory, decides upon extending or discontinuing relief, or fixing a time beyond which the employé goes out of the company's service.

Every patient who exceeds his leave of absence, without his physician's authority, or who requires unnecessarily the physician's attendance at his domicile, or is not at home when visited, is regarded as absent without leave and subject to penalty. The following are not entitled to medical relief:

1. Employés whose annual salary is more than 2,500 francs.
2. Employés and workmen who, though not required by the nature of their employment, dwell more than two kilometres (about one and one-quarter miles) from the establishments to which they are attached; in which case they can only require of the company's physician an authentication of their illness.
3. Those who, after discharge from attendance and before resuming work, again fall sick.
4. Subjects of a chronic infirmity previous to entering the company's service.
5. Those whose illness results from their own misconduct (drunkenness, venereal affections, brawls, etc.).
6. Day-laborers and those working for contractors.

ACCIDENTS.

When an accident occurs upon the line, the physician of that section, and, in his absence or in case of need, those of the neighboring sections, and even private physicians, are immediately summoned by telegraph, to render aid, and if necessary organize an ambulance service. The company's physicians should give attention to injured passengers until recovery, if they so desire. They draw up a circumstantial report of the accident, and transmit it directly, with the briefest possible

delay, to the physician-in-chief, who forwards it to the General Manager. In an urgent case the foremen and employés are to follow the printed instructions concerning the first relief to be rendered while waiting for the doctor.

Whenever a physician, for satisfactory reasons, desires his place to be filled during absence by one of his colleagues or by a private physician, he is to obtain permission of the physician-in-chief. Every physician of a section is entitled to a free pass over the road, both in his own and in each of the adjoining sections.

MEDICAL STORES.

A relief chest, with an amputation case, a stretcher and, if thought advisable, a supply of medicines and surgical appliances, are deposited at the stations where workshops are located or locomotives are changed. Common relief chests are deposited at other stations and establishments, where they are thought necessary. These various articles are entered upon the inventories of the stations and workshops, and are put in charge of the foremen of these establishments, who are responsible for their damage or loss when not in actual use. In any case of deficiency in these chests, the company's physicians must be informed immediately, so that what is wanting may be replaced without delay.

Purveyors of the company, such as apothecaries, druggists, surgical instrument makers, etc., are required to agree to a written tariff of prices. They are also expected to sell to the employés of the company, by the same tariff, whatever articles they need for their personal use.

The apothecary of each section is nominated by the local physician and confirmed by the physician-in-chief. Medicines are supplied on orders written by the physician at the moment of his visit to a patient. Apothecaries are required to keep an itemized account of the drugs entering into prescriptions, with their prices. The company makes no allowance for bottles and gallipots; consequently these are loaned by the druggists, the price of the same being deposited to secure their return. Druggists are not allowed to furnish and charge for other medicines and articles than those specified in the tariff. Special apparatus and instruments may be supplied only upon orders previously approved by the physician-in-chief.

All bills in the medical department are to be presented quarterly to the district physicians, and, after approval by them, are transmitted to the physician-in-chief.

PRINTED FORMS OF THE MEDICAL SERVICE

are as follows:

1. Stub-record for tickets of attendance (form 1,351).
2. Record of medical consultations (form 1,356).
3. Tariff of medicines and surgical appliances (form 1,361).
4. Orders for medicines (form 1,353).
5. Blanks for monthly reports of physicians (form 1,357).
6. Nomenclature of diseases and injuries (form 1,358).
7. Stub-record of physical examinations (form 1,354).
8. Regulations of the medical service.

9. Instructions for personal hygiene and for first relief in absence of a physician (form 1,362).

10-11. Letter and note heads (forms 1,363 and 1,364).

12. Hospital tickets (form 1,355).

13. Orders for bath (form 1,352).

No printed forms can be used, except those adopted and supplied by the administration.

[TO BE CONTINUED.]

Pintsch's Patent Lighting System.

THE Pintsch Patent Lighting System provides for the lighting of railroad cars and locomotives, steamships and ferryboats, buoys for seashore, river and harbor lights, and for railroad depots, factories, hotels and other buildings. It is now in general use in Europe, and the Pintsch Lighting Company has been organized under the general statutory provisions of the State of New Jersey, for the purpose of introducing the Pintsch system of lighting throughout the United States. The office of the company is at No. 19 William street, New York City, where the particulars as to the peculiarities of the system are procurable at any time.

The uniform favor with which the system has been regarded wherever tried is the best argument for its superiority. It easily stands at the head of the numerous inventions of the kind produced during the last twenty-five years; and, judging from the testimony as to its merits received from many countries, the Pintsch system seems to be a practicable and efficient solution of the difficulty which every railroad and steamboat company, and every traveler, finds in providing and enjoying respectively, a steady and adequate light throughout a journey of considerable length, derived from a single source of supply made ready before its commencement. Want of space forbids more than the citation of a single instance of its successful adoption in this country. This is best given in the words of Mr. D. S. Babcock, president of the Providence and Stonington Steamship Company, in a letter addressed to the secretary of the Pintsch Lighting Company. He says: "The use of compressed gas, as applied on the Pintsch system to the steamers Stonington and Narragansett of the Stonington Line, is a perfect success. These steamers are not only better lighted, at a less cost, than ever before, but are relieved from the cumbersome, expensive and dangerous rubber bags which are unavoidable in the use of coal-gas. As applied to the above steamers, the compressed gas is carried in steel cylinders, with an aggregate capacity of 420 cubic feet. Into these cylinders gas is admitted at a pressure of about six atmospheres—say 2,500 cubic feet—with which quantity the round trip is made from Stonington to New York and return. Under the old system, gas was taken at each end of the route, and the consumption on the round trips was from 6,500 to 7,000 cubic feet, though we have now many more burners than before, and a much more brilliant light. I can confidently recommend the Pintsch system for lighting steamboats as the best, cheapest and safest yet devised." As before intimated, the unanimous

opinion of railroad men who employ it is highly favorable. It is in use on sixty lines of railway throughout Europe, and on the New York, Lake Erie and Western Railroad, and the New York, Providence and Boston Railroad in the United States.

The gas for use in the Pintsch Patent Lighting system may be prepared from fat, petroleum refuse, paraffine refuse, stale oil, axle grease or any similar substance, with new appliances and apparatus specially invented for the various purposes of its application by Mr. Julius Pintsch of Berlin, Germany. Gas is prepared in furnaces of a new and peculiar construction, also especially invented by Mr. Pintsch. The refuse of which it is made is fed into a system of cast iron retorts set in a furnace, while the tar produced flows off to a store tank for ordinary use; the gas passes from the retorts through condensed washers and purifiers successively to the meter, and thence to the gas-holder. Here it is temporarily stored, and from this engine it is pumped by an engine to tanks, where it is stored for use under a pressure of ten atmospheres, or 150 pounds per square inch. Notwithstanding this amount of compression, the gas retains its permanency, and is not found to condense, or to cause any deposit in the pipes. The compression pump has two cylinders, in the first of which the gas is compressed to sixty pounds per square inch, the final compression to 150 pounds being effected in the second cylinder. In railway carriage lighting the gas is carried from the stores-holders on the works, which are usually situated near the main station of a line, to filling posts placed conveniently for the trains. By means of hose the gas is supplied to cylindrical iron reservoirs fixed under the carriages, and where it is stored for use at a pressure of ninety pounds per square inch. From the cylinders—of which there are two under each carriage coupled together—the gas is conducted by iron pipes of small diameter to the lamps, passing on its way through a regulator, by means of which a perfectly even pressure is maintained at each burner in all circumstances. The lamps are different in form from those usually employed in carriage roofs, and are placed well out of the way. There are outside arrangements for turning all the lights in a carriage simultaneously down to a glimmer, while the train is traveling in the open, and for turning them up when entering a tunnel. This account, condensed from the London Times of April 8, 1879, concludes in the following words: "A considerable experience with this gas on foreign railways, and three years of its working on some of our own lines, including the Great Eastern and Metropolitan, has shown that it is perfectly safe in manufacture, storage and use. The gas is found to be permanent, and to possess a very high illuminating power. As regards its cost, it is stated that where an oil lamp costs three farthings, and ordinary coal gas one-third of a penny per hour per light, Pintsch's gas costs only one farthing per hour per light, interest on capital being included in all three cases. The system has the approval of the engineers on whose line it has been adopted, and its efficiency and stated economy commend it for use in other directions."

We refer the reader to the company above mentioned for further information, as we cannot find room in the present issue for such detailed description as may be procured in this way. In conclusion, we will say only that the descriptive pamphlet published by the Pintsch Lighting Company, is one of the most interesting and valuable works of the kind we have ever seen. Every railroad man of prominence should procure it and make himself acquainted with its contents.

Imports of Dry Goods at New York.

THE Imports of Foreign Dry Goods at New York for the month of November, were:—

ENTERED FOR CONSUMPTION.			
	1880.	1881.	1882.
Manufs. of wool....	\$514,355	\$1,092,622	\$1,146,256
Manufs. of cotton....	813,293	1,221,628	1,347,287
Manufs. of silk....	1,280,109	2,395,428	2,231,643
Manufs. of flax....	694,007	999,445	1,073,187
Miscell. dry goods....	532,169	628,524	696,061
Total ent. for consumption.....	\$3,934,133	\$6,337,647	\$6,484,434
WITHDRAWN FROM WAREHOUSE.			
	1880.	1881.	1882.
Manufs. of wool....	\$601,109	\$508,720	\$639,060
Manufs. of cotton....	269,395	222,159	224,793
Manufs. of silk....	460,407	418,119	451,467
Manufs. of flax....	314,591	296,064	282,437
Miscell. dry goods....	224,311	284,306	201,442
Total withdrawn from warehouse.....	\$1,869,813	\$1,729,368	\$1,799,199
Add ent. for con....	3,934,133	6,337,647	6,484,434
Total thrown on the market.....	\$5,803,946	\$8,067,015	\$8,283,633

ENTERED FOR WAREHOUSING.			
	1880.	1881.	1882.
Manufs. of wool....	\$332,602	\$412,723	\$643,411
Manufs. of cotton....	261,117	228,982	368,966
Manufs. of silk....	370,698	551,464	794,917
Manufs. of flax....	296,533	270,006	347,593
Mis. dry goods....	324,544	223,726	264,713
Total ent. for warehouse.....	\$1,643,494	\$1,686,841	\$2,419,600
Add entered for consumption.....	3,934,133	6,337,647	6,484,434
Total ent. at port....	\$5,557,627	\$8,024,488	\$8,904,034

The Imports of Foreign Dry Goods at New York for eleven months from January 1, were:—

ENTERED FOR CONSUMPTION.			
	1880.	1881.	1882.
Manufs. of wool....	\$17,748,914	\$16,819,710	\$21,178,752
Manufs. of cotton....	19,920,396	19,636,606	21,562,552
Manufs. of silk....	27,584,381	27,670,977	34,337,799
Manufs. of flax....	12,243,545	11,573,195	12,945,765
Mis. dry goods....	8,029,784	7,818,957	8,422,848
Total entered for consumption...	\$85,527,030	\$83,519,445	\$98,447,626
WITHDRAWN FROM WAREHOUSE.			
	1880.	1881.	1882.
Manufs. of wool....	\$7,563,736	\$7,894,343	\$7,567,512
Manufs. of cotton....	3,746,395	4,116,223	3,541,021
Manufs. of silk....	5,654,203	5,030,665	5,691,507
Manufs. of flax....	4,169,674	4,662,850	3,762,856
Mis. dry goods....	1,920,716	2,340,806	2,173,989
Total withdrawn from warehouse....	\$23,054,725	\$24,044,888	\$22,734,793
Add entered for consumption...	85,527,030	83,519,445	98,447,626
Total thrown on the market.....	\$108,581,755	\$107,564,363	\$121,182,419

ENTERED FOR WAREHOUSING.			
	1880.	1881.	1882.
Manufs. of wool....	\$9,558,204	\$6,405,931	\$8,253,330
Manufs. of cotton....	4,177,626	3,473,137	3,877,343
Manufs. of silk....	6,106,000	4,690,827	6,248,957
Manufs. of flax....	5,658,928	3,872,578	3,918,124
Mis. dry goods....	2,505,593	2,361,652	2,330,379
Total entered for warehouse.....	\$27,981,351	\$20,804,125	\$24,628,133
Add entered for consumption...	85,527,030	83,519,445	98,447,626
Total ent. at port....	\$113,508,381	\$104,323,570	\$123,075,759

SUBSCRIBE for the RAILROAD JOURNAL.

THE STOCK EXCHANGES AND MONEY MARKET.

New York Stock Exchange.

Closing Prices for the week ending Dec. 6.

Th. 30. F. 1. Sat. 2. M. 4. Tu. 5. W. 6.

Adams Express.....	137 1/2				
Albany and Susq. 1st mortgage.....	106				
2d mortgage.....	106				
American Express.....	95	94	94	95	95
Burl. C. R. & Nor. 1st mortgage 5a.....	100				102
Canada Southern.....	66 1/2	66 1/2	66 1/2	66 1/2	68
1st mortgage guar.....	94 1/2	95	96		
Central of N. Jersey.....	68 1/2	68 1/2	70 1/2	70 1/2	71 1/2
1st mort. 1890.....					
7a, consol. ass.....	109 1/2	108	108		
7a, convertible ass.....	108				
7a, Income.....	104				
Adjustment.....	104				
Central Pacific.....	86 1/2	86 1/2	86	86 1/2	87 1/2
6a, gold.....	114 1/2				115
1st M. (San Jose).....					
1st M. (Cal. & Or.).....					
Land grant 6a.....					
Chesapeake & Ohio.....	23	22 1/2	23		
1st pref.....					33 1/2
2d pref.....	24 1/2				
1st mort., series B.....	86	86	87	87	87
Chicago and Alton.....	132 1/2	132 1/2	132 1/2	131 1/2	132 1/2
Preferred.....					
1st mortgage.....					120
Sinking Fund.....					
Chi., Bur. & Quincy 7a, Consol. 1903.....	124 1/2	124	124 1/2	124 1/2	125
Chi., Mil. & St. Paul Preferred.....	100 1/2	99 1/2	100	100 1/2	102 1/2
1st mortgage, 8a.....	119	118 1/2	118 1/2	119	119 1/2
2d mort., 7 3-10s.....					
7a, gold.....					
1st M. (La. C. div).....					128
1st M. I. & M. div.....					
1st M. (I. & D. ext.).....					119
1st M. (H. & D. div.).....					122
1st M. (O. & M. div.).....					124 1/2
Consolidated S. F.....	433 1/2	433 1/2	434 1/2	433 1/2	434 1/2
Preferred.....	151	151 1/2	151 1/2	153 1/2	154 1/2
1st mortgage.....	107 1/2				
Sinking Fund 6a.....					109 1/2
Consolidated 7a.....					133
Consol. Gold b'ds.....	124 1/2	124 1/2			125
Do. reg.....					
Chi., R. Isl. & Pac. 6a, 1917, C.....	126	125 1/2	125	126	127
1st mortgage.....	128				127 1/2
Clev., Col. & Ind. 1st mortgage.....	75 1/2	75	75 1/2		
Clev. & Pittsburg gr. 7a, Consolidated.....					138 1/2
4th mortgage.....					
Col., Chi. & Ind. Cent 1st mortgage.....	5 1/2	5	5 1/2	5 1/2	5 1/2
2d mortgage.....					120 1/2
Del. & Hud Canal.....	107 1/2	106 1/2	107 1/2	106 1/2	107 1/2
Reg. 7a, 1891.....		116			
Reg. 7a, 1884.....					
7a, 1894.....		114			
Del., Lack. & Western 2d mortgage 7a.....	125 1/2	124 1/2	124 1/2	125	126 1/2
Consol. 1907.....					
Erie Railway.....					
1st mortgage.....					129
2d mort. 5a, ext.....					102
3d mort. 5a, ext.....	102 1/2				
4th mort. 5a, ext.....					
5th mortgage.....					128
7a, Consol. gold.....	126				
Great West. 1st mort 2d mortgage.....		97			96 1/2
Hannibal & St. Jo. Preferred.....	72				
8a, Convertible.....					
Houston & Tex. Cen 1st mortgage.....	73 1/2	72 1/2	75		
2d mortgage.....	110				
Illinois Central.....	143 1/2	142 1/2	143 1/2	144 1/2	147
Lake Shore & Mich So Consol. 7a.....	113 1/2	113 1/2	113 1/2	113 1/2	115 1/2
Consol. 7a, reg.....					120
2d Consolidated.....					129
Lch. & W. B. con. ass.....	100				
Long Dock bonds.....					
Louisville & Nash. 7a, Consolidated.....	50 1/2	50 1/2	50 1/2	51 1/2	51 1/2
Manhattan.....	45 1/2		42	42	87
Met. Elevated.....					
1st mortgage.....		99	98 1/2	99 1/2	
Michigan Central.....	97	97	97 1/2	98 1/2	99 1/2
7a, 1905.....	122 1/2				123
Morris & Essex.....					
1st mortgage.....					

2d mortgage.....					
7a of 1871.....	121 1/2				
7a, Convertible.....					120 1/2
7a, Consolidated.....	129 1/2	129	129 1/2	129 1/2	131
N. Y. Cen. & Hud. R. 6a, S. F. 1883.....	100 1/2				100 1/2
6a, S. F. 1887.....					
1st mortgage.....					
1st mortgage, reg.....					
N. Y. Elevated.....					
1st mortgage.....	116				
N. Y. & Harlem Preferred.....					
1st mortgage.....					
1st mortgage, reg.....					
N. Y. Lake Erie & W Preferred.....	36 1/2	35 1/2	36 1/2	36 1/2	37
2d mortgage.....	84	84 1/2	84 1/2	82 1/2	
2d Consolidated.....	95 1/2	96 1/2	96 1/2		96
New 2d 5a fund.....					
N. Y., N. Hav. & Hart North Mo. 1st mort.....					
Northern Pacific.....	46 1/2	45 1/2	45 1/2	45 1/2	46 1/2
Preferred.....	96 1/2	96 1/2	96 1/2	97 1/2	98
Ohio & Mississippi Preferred.....	34	33 1/2	32 1/2		34
2d mortgage.....					
Consolidated 7a.....	120		120 1/2		121
Consol. S. Fund.....					
Pacific Mail S. S. Co.....	35 1/2	34 1/2			35
Pacific R. R. of Mo. 1st mortgage.....					
2d mortgage.....					
Panama.....					
Phila. & Reading.....	50	50 1/2	50 1/2	50 1/2	52
Pitts. Ft. W. & Chi. gtd 1st mortgage.....	135				
2d mortgage.....					
3d mortgage.....					
Pullman Palace Car Preferred.....					
Quickkill R. Min'g Co Preferred.....					
St. Louis & San Fran Preferred.....					33
1st Preferred.....					52
St. L., Alt'n & T. H. Preferred.....	86	84 1/2			86
1st mortgage.....					87
2d mort. pref.....					
Income bonds.....					
St. L., Iron Mt. & S. 1st mortgage.....	115 1/2				115 1/2
2d mortgage.....	103 1/2				103 1/2
Toledo and Wabash.....					
1st mortgage.....					
2d mortgage.....					
7a, Consolidated.....					
St. Louis Division.....	102	101 1/2	100 1/2	101 1/2	102 1/2
Union Pacific.....	102 1/2	101 1/2	100 1/2	101 1/2	102 1/2
1st mortgage.....					115 1/2
Land Grant 7a.....					110 1/2
Sinking Fund 8a.....					117 1/2
United States Ex.....	67	68 1/2	65		
Wabash, St. L. & Pac Preferred.....	30 1/2	30	30	31 1/2	32 1/2
New mort. 7a.....	53 1/2	51 1/2	52 1/2	53 1/2	54 1/2
Wells-Fargo Ex.....	129		129		
Western Pacific b'ds.....					
Western Union Tel. 7a, S. F. conv., 1900.....	81	80 1/2	80 1/2	81 1/2	82

FEDERAL STOCKS:—

U. S. 4s, 1907, reg.....			119	119 1/2	
U. S. 4s, 1907, coup.....				120 1/2	120
U. S. 4 1/2s, 1891, reg.....				112 1/2	
U. S. 4 1/2s, 1891, coup.....					112 1/2
U. S. 5s, cont'd at 3 1/2.....					
U. S. 5s, reg.....	101 1/2	102	102	102 1/2	102 1/2
Dt. of Col. 3-6s, reg.....					
Dt. of Col. 3-6s, coup.....					

Boston Stock Exchange.

Closing Prices for the Week Ending Dec. 6.

Th. 30. F. 1. Sat. 2. M. 4. Tu. 5. W. 6.

Atch., Top. & San. Fe. 1st mortgage.....	85 1/2	84 1/2	85	85 1/2	85 1/2
Land Grant 7a.....		118 1/2	119		
Boston & Albany.....	172 1/2				173
Boston and Lowell.....	98		99		100
Boston & Maine.....	147		147		147
Boston & Providence.....					
Bos'n, Hart. & Erieys.....					
Burl. & Mo. R. L. G. 7a.....					
Burl. & Mo. R. in Neb 6a, exempt.....					
4th.....					
Chi., Burl. & Quincy.....	124 1/2	124	124 1/2	124 1/2	125 1/2
Cin., Sand & Clev (\$50).....					
Concorc (\$50).....					
Connecticut River.....					
Eastern.....	31 1/2		32	32 1/2	
New 6a, Bond.....	109	109 1/2			110

Fitchburg.....			132 1/2		130
N. Y. & New England.....	48	47	47 1/2	47	47
7a.....				114 1/2	114 1/2
Northern N. H.....					108
Norwich & Worcester.....					
Ogden & Lake Cham.....					
Old Colony.....	136 1/2	135 1/2	135 1/2	136 1/2	
Ph., Wil. & Balt. (\$50).....					
Portl'd, Saco & Ports.....					
Pueblo & Ark Val 7a.....					
Pullman Palace Car.....			124 1/2		
Union Pacific.....	103 1/2	102 1/2	101 1/2	101 1/2	102 1/2
6a.....					
Land Grant 7a.....					
Sinking Fund 8a.....			115	115	
Vermont & Mass.....					
Worcester & Nashua.....					58
Cambridge (Horse).....	97				
Metropolitan (Horse).....	74 1/2				
Middlesex (Horse).....					
Cal. & Hecla Min'g Co.....	249	248	249	250	
Quincy.....	60 1/2		60 1/2	59 1/2	60

Philadelphia Stock Exchange.

Closing Prices for the Week Ending Dec. 5.

W. 29. Th. 30. F. 1. Sat. 2. M. 4. Tu. 5.

Allegh'y Val. 7 3-10s					
7a, Income.....					
Buff., Pitts & West.	17½	17½	18	17½	
Camd'n & Am. 6a, '83					
6a, 1889.....					
Mort. 6a, 1889.....				112	
Camden & Atlantic.					
Preferred.....					
1st mortgage.....					
2d mortgage.....					
Catawissa.....		21½		21	
Preferred.....					
2d pref.....					
7a, new.....					
Del. & Bound Brook					
7a.....					
Elmira & Williamspt					
Preferred.....					
Hunt. & B. Top Mt.	15½	15½			
Preferred.....	32½	32½			
2d mortgage.....					
Lehigh Navigation.	39½	39½	39	37½	37½
6a, 1884.....					103½
Gold Loan.....	112				
Railroad Loan.....					115
Conv. Gold Loan.....					
Consol. Mort. 7a.			114½		
Lehigh Valley.....	64	64	64	64	64
1st mort. 6a, coup					
1st mort. 6a, reg.					
2d mort. 7a.....	132				
Consol. mort. 6a.					
Consol. mtg. 6a, reg.		120			
Little Schuylkill...	58½	58½			
Minehill & Sch. Hav'n	62½				62½
North Pennsylvania	64	64	64	63½	
1st mortgage 6a.					
2d mortgage 7a.					
Genl. mtg. 7a, coup					
Genl. mtg. 7a, reg					
Northern Central..	55½			56	56
5a.....		98½		98½	
Northern Pacific...	45½	45½	45½	45½	46½
Preferred.....	96	96½	98½	96½	98½
Pennsylvania R. R.	59½	60½	60	59½	59½
1st mortgage.....					
Gen'l mort.....					
Gen'l mort reg....	125				
Consol. mort. 6a.	120				
Consol. mort. reg.					
Pa. State 5a, new...					
do 4a, new.....					
do 3½a, 1912....					
Phila. & Reading...	26	24½	25½	25½	25½
1st mortgage 6a.					
7a of 1893.....			118½		118½
7a, new convert...	66	67	66½		
Consol. mort. 7a.	126½				
Consol. mort. reg.		122½		122½	123
Gen'l mort. 6a.	93	94½	95	93½	93½
Def. Income bonds					
Philadelphia & Erie	21		20		
1st mortgage 5a.				102½	
2d mortgage 7a.			115	102½	
Pittsb., Cin. & St. L.					
Pitts., Tit. & Buff. 7a.		94			
Schuylkill Nav'l'n.					
Preferred.....					
6a, 1897.....					105½
6a, 1907.....			89		
United Co. of N. J.		188½		188½	188½
Hestonville, (Horse)					
Chestnut & Walnut.					

Baltimore Stock Exchange.

Closing Prices for the Week Ending Dec. 5.

W. 29. Th. 30. F. 1. Sat. 2. M. 4. Tu. 5.

Baltimore & Ohio....	193 1/4	195	202	194 1/4	195	202
6s, 1885....						
Central Ohio (\$50)....						
1st mortgage....	108	108	108	108	108	108
Marietta & Cincin'ti....						
1st mortgage, 7s....	128	128	128 1/4	128	128	128
2d mortgage, 7s....	100 1/4	100 1/4	100 1/4	100 1/4	100 1/4	100 1/4
3d mortgage, 8s....	55 1/4	55	55 1/4	56	55 1/4	55 1/4
Northern Cen. (\$50)....	56 1/4	56 1/4	56 1/4	56 1/4	56 1/4	56 1/4
1st mort. 6s, 1885....						
2d mort. 6s, 1885....	106	106	106	106	106	106
3d mort. 6s, 1885....	106 1/4	106 1/4	106 1/4	106 1/4	106 1/4	106 1/4
6s, 1900, gold....	116 1/4	117	117	117	117	117
6s, 1904, gold....	106	106	106	106	106	106
Pitts. & Connellev. 7s....						
1st mort. 6s, 1885....	123	123	123	123	123	123
2d mort. 6s, 1885....	123	123	123	123	123	123
3d mort. 6s, 1885....	123	123	123	123	123	123
4th mort. 6s, 1885....	123	123	123	123	123	123
5th mort. 6s, 1885....	123	123	123	123	123	123
6th mort. 6s, 1885....	123	123	123	123	123	123
7th mort. 6s, 1885....	123	123	123	123	123	123
8th mort. 6s, 1885....	123	123	123	123	123	123
9th mort. 6s, 1885....	123	123	123	123	123	123
10th mort. 6s, 1885....	123	123	123	123	123	123
11th mort. 6s, 1885....	123	123	123	123	123	123
12th mort. 6s, 1885....	123	123	123	123	123	123
13th mort. 6s, 1885....	123	123	123	123	123	123
14th mort. 6s, 1885....	123	123	123	123	123	123
15th mort. 6s, 1885....	123	123	123	123	123	123
16th mort. 6s, 1885....	123	123	123	123	123	123
17th mort. 6s, 1885....	123	123	123	123	123	123
18th mort. 6s, 1885....	123	123	123	123	123	123
19th mort. 6s, 1885....	123	123	123	123	123	123
20th mort. 6s, 1885....	123	123	123	123	123	123
21st mort. 6s, 1885....	123	123	123	123	123	123
22nd mort. 6s, 1885....	123	123	123	123	123	123
23rd mort. 6s, 1885....	123	123	123	123	123	123
24th mort. 6s, 1885....	123	123	123	123	123	123
25th mort. 6s, 1885....	123	123	123	123	123	123
26th mort. 6s, 1885....	123	123	123	123	123	123
27th mort. 6s, 1885....	123	123	123	123	123	123
28th mort. 6s, 1885....	123	123	123	123	123	123
29th mort. 6s, 1885....	123	123	123	123	123	123
30th mort. 6s, 1885....	123	123	123	123	123	123
31st mort. 6s, 1885....	123	123	123	123	123	123
32nd mort. 6s, 1885....	123	123	123	123	123	123
33rd mort. 6s, 1885....	123	123	123	123	123	123
34th mort. 6s, 1885....	123	123	123	123	123	123
35th mort. 6s, 1885....	123	123	123	123	123	123
36th mort. 6s, 1885....	123	123	123	123	123	123
37th mort. 6s, 1885....	123	123	123	123	123	123
38th mort. 6s, 1885....	123	123	123	123	123	123
39th mort. 6s, 1885....	123	123	123	123	123	123
40th mort. 6s, 1885....	123	123	123	123	123	123
41st mort. 6s, 1885....	123	123	123	123	123	123
42nd mort. 6s, 1885....	123	123	123	123	123	123
43rd mort. 6s, 1885....	123	123	123	123	123	123
44th mort. 6s, 1885....	123	123	123	123	123	123
45th mort. 6s, 1885....	123	123	123	123	123	123
46th mort. 6s, 1885....	123	123	123	123	123	123
47th mort. 6s, 1885....	123	123	123	123	123	123
48th mort. 6s, 1885....	123	123	123	123	123	123
49th mort. 6s, 1885....	123	123	123	123	123	123
50th mort. 6s, 1885....	123	123	123	123	123	123
51st mort. 6s, 1885....	123	123	123	123	123	123
52nd mort. 6s, 1885....	123	123	123	123	123	123
53rd mort. 6s, 1885....	123	123	123	123	123	123
54th mort. 6s, 1885....	123	123	123	123	123	123
55th mort. 6s, 1885....	123	123	123	123	123	123
56th mort. 6s, 1885....	123	123	123	123	123	123
57th mort. 6s, 1885....	123	123	123	123	123	123
58th mort. 6s, 1885....	123	123	123	123	123	123
59th mort. 6s, 1885....	123	123	123	123	123	123
60th mort. 6s, 1885....	123	123	123	123	123	123
61st mort. 6s, 1885....	123	123	123	123	123	123
62nd mort. 6s, 1885....	123	123	123	123	123	123
63rd mort. 6s, 1885....	123	123	123	123	123	123
64th mort. 6s, 1885....	123	123	123	123	123	123
65th mort. 6s, 1885....	123	123	123	123	123	123
66th mort. 6s, 1885....	123	123	123	123	123	123
67th mort. 6s, 1885....	123	123	123	123	123	123
68th mort. 6s, 1885....	123	123	123	123	123	123
69th mort. 6s, 1885....	123	123	123	123	123	123
70th mort. 6s, 1885....	123	123	123	123	123	123
71st mort. 6s, 1885....	123	123	123	123	123	123
72nd mort. 6s, 1885....	123	123	123	123	123	123
73rd mort. 6s, 1885....	123	123	123	123	123	123
74th mort. 6s, 1885....	123	123	123	123	123	123
75th mort. 6s, 1885....	123	123	123	123	123	123
76th mort. 6s, 1885....	123	123	123	123	123	123
77th mort. 6s, 1885....	123	123	123	123	123	123
78th mort. 6s, 1885....	123	123	123	123	123	123
79th mort. 6s, 1885....	123	123	123	123	123	123
80th mort. 6s, 1885....	123	123	123	123	123	123
81st mort. 6s, 1885....	123	123	123	123	123	123
82nd mort. 6s, 1885....	123	123	123	123	123	123
83rd mort. 6s, 1885....	123	123	123	123	123	123
84th mort. 6s, 1885....	123	123	123	123	123	123
85th mort. 6s, 1885....	123	123	123	123	123	123
86th mort. 6s, 1885....	123	123	123	123	123	123
87th mort. 6s, 1885....	123	123	123	123	123	123
88th mort. 6s, 1885....	123	123	123	123	123	123
89th mort. 6s, 1885....	123	123	123	123	123	123
90th mort. 6s, 1885....	123	123	123	123	123	123
91st mort. 6s, 1885....	123	123	123	123	123	123
92nd mort. 6s, 1885....	123	123	123	123	123	123
93rd mort. 6s, 1885....	123	123	123	123	123	123
94th mort. 6s, 1885....	123	123	123	123	123	123
95th mort. 6s, 1885....	123	123	123	123	123	123
96th mort. 6s, 1885....	123	123	123	123	123	123
97th mort. 6s, 1885....	123	123	123	123	123	123
98th mort. 6s, 1885....	123	123	123	123	123	123
99th mort. 6s, 1885....	123	123	123	123	123	123
100th mort. 6s, 1885....	123	123	123	123	123	123

London Stock Exchange.

Closing Prices

Nov. 17. Nov. 24.

Baltimore and Ohio 5s, 1927....	108	110	108	110
Central of N. J., \$100 shares....	80	85	80	85
Do. consol. mort....	110	112	110	112
Do. Income Bonds....	88	92	88	92
Central Pacific of Cal., \$100 shs....	91 1/4	92 1/4	86	89
Do. 1st mort. 6s, 1895-98....	117	119	117	119
Det. G'd Haven & Mil. Equip bds....	118	118	118	118
Do. Con. M. sp. c. till '83 after 6p. c. 115	117	115	117	115
Illinois Central \$100 shares....	153 1/4	153 1/4	148	150
Do. S. F. 5s, 1903....	104	106	104	106
Lehigh Valley Cons. mort. 1923....	112	116	112	116
Louisville and Nashville mort. 6s 89	91	91	90	92
Do. capital stock \$100 shares....	52	54	51	53
N. Y. Cen. & Hud. R. mort. bonds....	134 1/4	135 1/4	132	136
Do. \$100 shares....	136	137	131	134
Do. mort. bonds (reg.)....	122	124	122	124
N. Y. Lake Erie & West. \$100 shs....	86	88	84	86
Do. 6 p. c. pref. \$100 shares....	86	88	84	86
Do. 1st Con. Mort. bonds (Erie)....	127	130	127	130
Do. do. Funded Coupon bonds....	127	127	127	127
Do. 2d Consol. Mort. bonds....	99	101	98	99
Do. do. Funded Coupon bonds....	97	99	96	98
N. Y., Pa. & Ohio 1st mort. bonds....	51	52	48	49 1/4
Do. Prior Lien bonds (sterling)....	100	105	100	105
Pennsylvania \$50 shares....	61 1/4	62 1/4	60 1/4	60 1/4
General Mortgage....	123	125	124	126
Phil. & Erie Gen. mort. 6s, 1920....	117	119	117	119
Philadelphia & Reading \$50 shs....	29 1/4	29 1/4	25 1/4	26 1/4
General Consol Mortgage....	117	119	117	119
Do. Improvement Mortgage....	103	105	103	105
Do. Gen. Mtg. 7 1/4 ex-def'd coup. 96	96	98	96	98
St. L. Bridge 1st mort. gold bond....	123	123	121	123
Do. 1st pref. stock....	94	98	94	98
S. P. of Cal., 1st mort 6s, 1905-6....	106 1/4	107 1/4	106 1/4	107 1/4
Union Pacific 1st mtg. 6s, 1896-9....	117	119	117	119
Wabash, St. L. & P. \$100 shares....	33	36	30	32
Do. \$100 pref. shares....	60 1/4	61 1/4	55	56
Do. gen. mort. bonds....	82	84	81	83

AMERICAN RAILROAD JOURNAL.

Financial and Commercial Review.

WEDNESDAY EVENING, December 7, 1882.

MONEY on call this morning was 5@6 per cent. Time loans were 4 per cent on Governments and 6 per cent on stocks. After 1 o'clock money loaned at 5 to 5 1/2 per cent; and after 2 o'clock at 3 1/4 to 4 per cent. The loaning rates for stocks were from 2 to 4 per cent.

The posted rates for bankers' bills were 4.80% @ 4.84 1/4%. Sixty-day bills were 4.79 1/4% to 4 1/4%, demand 4.83 1/4% to 4 1/4%. Cables 4.84 1/4% to 4 1/4%. Continental exchange was as follows: France, 5.23 1/4% @ 5.20 1/4%. Reichmarks, 94 1/4% to 95 1/4% @ 94 1/4%. Guilders, 39 1/4% and 39 1/4% to 40.

The Treasurer of the United States in his annual report says that the receipts of the Government during the last fiscal year show an increase over those of 1881 of \$22,251,054.23 from customs, \$11,233,209.94 from internal revenue, \$2,551,377.20 from sales of public lands, and \$6,707,416.34 from miscellaneous sources—making a total increase in the net revenue of \$42,742,957.71. The total net revenue was \$403,525,250.28. The net expenditures decreased from \$260,712,887.59 to \$257,981,440.20, a reduction of \$2,731,447.39; which, added to the increase in receipts, makes an increase of \$45,474,405.10 in the surplus revenues applicable to the reduction of the pub-

lic debt. The expenditures on account of interest on the public debt show a reduction of \$11,431,534.39, from \$82,508,741.18 in 1881, to \$71,077,206.79 in 1882. The excess of revenues over expenditures was \$145,543,810.08, and the amount applied to the reduction of the debt \$166,281,505.53. The amount on the books to the credit of disbursing officers at the close of the year was \$36,067,872.48. The amount of currency outstanding at the close of the year was \$362,464,582.10. There was redeemed \$105,773,706.05, making the total redemptions since the first issue of currency of \$2,405,914,779.41. The issues of silver certificates were \$24,300,000 and the redemption \$20,138,290, leaving the amount nominally outstanding at the close of the year \$66,096,710. There were paid coupons from United States bonds amounting to \$11,088,609.02, and \$37,547,821.50 was paid for interest on registered bonds. United States bonds were redeemed to the amount of \$165,204,450, of which \$60,079,100 was applied to the sinking fund. The total amount of bonds retired from March 11, 1869, to June 30, 1882, is \$2,149,549,250. Commenting on the statement of assets and liability of the Government on September 30 of the last four years, the Treasurer says:—

"The most noteworthy change in the last year is the decrease of the gold coin and bullion from \$176,791,566.41 to \$153,047,964.12, and the increase of the standard silver dollars from \$65,949,379 to \$92,025,350, a decrease in the gold of \$23,743,602.29, and an increase in the silver dollars of \$26,076,071. Deducting the amount held for the redemption of gold certificates, the gold belonging to the Government in the Treasury on the 30th of September was \$154,987,371.29 in 1879, \$128,160,085.77 in 1880, \$169,552,746.41 in 1881, and \$1

1st, 105; do. consol. mort. 6s, 92½; Union and Titusville 7s, 91; West Jersey and Atlantic 6s, 108. The latest quotations are: City 6s, 108@120; do. free of tax, 125@133; do. 4s, new, 106@114; Pennsylvania State 5s, new loan, 118@119; do. 4s, old, 112@114; do. 4s, new, 116@117; Philadelphia and Reading Railroad, 25½@25¾; do. consol. mort. 7s, reg., 122½@123¾; do. gen'l mort. 6s, coupon, 93@94; do. 7s, 1893, 118@119; do. 7s, new conv., 65@67; United New Jersey R. R. and Canal, 188@189; Buffalo, Pittsburg and Western, 17½@17¾; Pittsburgh, Titusville and Buffalo 7s, 94@96; Camden and Amboy mort. 6s, 1889, 111@112; Pennsylvania R. R., 59½@59¾; do. general mort. 6s, coupon, 124@126; do. reg., 124@125; do. consol. mort. 6s, reg., 120@121; Little Schuylkill R. R., 58½@59; Schuylkill Navigation pref., 12@13; do. 6s, 1882, 88@90; Elmira and Williamsport pref., 58@60; do. 5s, —@100; Lehigh Coal and Navigation, 37½@35¾; do. 6s, 1884, 103@103½; do. R. R. loan, 114½@115½; do. Gold Loan, 111½@112½; do. consol. 7s, reg., 117@118; Northern Pacific, 46@46½; do. pref., 97½@97¾; North Pennsylvania, 63½@64; do. 6s, 105@106; do. 7s, 119@—; do. 7s, General mort. reg., 124@—; Philadelphia and Erie, 20½@21; do. 7s, 114½@115; do. 5s, 101½@102½; Minehill, 62½@63; Catawissa, 20½@21; do. pref., 53@53½; do. new pref., 52@52½; do. 7s, 1900, 117@120; Lehigh Valley, 63½@63¾; do. 6s, coupon, 121@123; do. reg., 118@120; do. 7s, reg., 132@132½; do. consol. mort. reg., 119@—; Fifth and Sixth streets (horse), —@190; Second and Third, 114@116; Thirteenth and Fifteenth, 74@76; Spruce and Pine, 42@44; Green and Cones, 80@88; Chestnut and Walnut, —@93; Germantown, 70@72; Union, 110@—; West Philadelphia, 120@—; People's, 8½@9¾; Continental, 103@105.

Baltimore.—Atlantic Coal, 1.00; Atlanta and Charlotte, 64; do. 1st, 106½; do. inc., 78; Baltimore and Ohio 1st pref., 128; do. 2d pref., 123½; Baltimore City 6s, 1886, 107; do. 6s, 1890, 114; do. 6s, 1900, 128; do. 5s, 1894, 112½; do. 5s, 1916, 120½; Columbia and Greenville 2d, 74; Charlotte, Columbia and Augusta, 36½; do. 2d, 99½; Canton 6s, 110; Citizens Pass., 18; George's Creek Coal, 93½; Maryland Defense 6s, 104; Richmond and Danville bonds 1890, 105; Virginia Midland 2d mort., 108; do. 5th mort., 93½; Virginia 10-40 coupons 68; Wilmington, Columbia and Augusta, 105½; Wilmington and Weldon, 118. The latest quotations are: Atlanta and Charlotte 1st, 106½@106¾; Baltimore and Ohio, 196@210; do. 6s, 1885, 104@104½; Baltimore City Passenger R. R., 46@50; Baltimore City 6s, 1890, 114@114½; do. 5s, 1894, —@112½; do. 5s, 1916, 120½@—; Canton Co. 6s, 110@111; Columbia and Greenville 1st, 1916, 101½@103; Central Ohio 6s, 107½@108½; Marietta and Cincinnati 7s, 1891, 128½@—; do. 7s, 1896, 100½@101½; do. 8s, 1890, 55½@56; Northern Central, 56@56½; do. 6s, 1900, 116½@—; do. 5s, Series A, 98½@99½; do. B, 96@98½; do. 6s, 1885, 106@—; do. 6s, 1904, gold, —@116; Ohio and Mississippi, Springfield div. 1st, 114@114½; Pittsburgh and Connellsville 7s, 122½@—; Richmond and Danville 6s, gold, 93½@95; Virginia Midland 5th mort., 93@93½; do. inc., 53@60; Virginia consol., 62½@63; do. 10-40s, 43½@44.

Thanksgiving Statistics.

JOSEPH NEMMO, Jr., Chief of the Bureau of Statistics of the Treasury Department at Washington, D. C., supplied by request, on the 29th ult., to the Rev. T. S. Wynkoop, D. D., pastor of the Western Presbyterian Church of that city, the subjoined data to be used by him in the preparation of his discourse to his hearers on the following day:—

The Department of Agriculture estimates the corn crop of this year at 1,680,000,000 bushels, as against 1,194,916,000 in 1881. The latest estimate of the wheat crop of the season of 1882 is 500,000,000, as against 380,280,000 bushels in 1881. The value of our domestic exports during the fiscal year ended June 30, 1882, was \$733,239,732, as against \$883,925,947 during 1881, a falling off of \$150,686,215. This, however, was due almost entirely to the failure of the crops of the country during the season of 1881, a result attributable to the drought and

other unfavorable meteorological influences which prevailed so extensively throughout the country during that season. In view of the fact that on the average about eighty per cent of our exports abroad consists of products of agriculture it is evident that an unfavorable season must very much diminish the value of our exports. But notwithstanding the fact that the season of 1881 was one of the most unfavorable ever known, we still had bread enough and to spare, and besides a large quantity of cotton for export. The value of our exports of bread and breadstuffs during the year ended June 30, 1882, the same being the product of the crop of 1881, amounted to \$182,670,528. The value of our exports of cotton was \$199,812,644. We also considerably increased the value of exports of manufactured articles.

Our imports during the year ended June 30, 1882, amounted to \$724,639,574, being larger than during any previous year in the history of the country. Notwithstanding the decrease of our exports, owing to the cause above referred to, and the increase of our imports, the balance of our trade in our favor was nearly \$26,000,000.

But the foreign commerce of the country is of small value in comparison with the value of our internal commerce. Railroads are now the principal highways of transportation in our internal trade. The number of tons transported on fifteen leading trunk railroads of the United States during the last fiscal year of which returns can be obtained amounted to 96,663,160 tons, as against 84,199,344 tons during the preceding fiscal year, an increase of nearly fifteen per cent. The railroad mileage of the United States on the 1st of January, 1882, was 104,813 miles. There were built in the United States during the year 1881, 9,386 miles of main line, or nearly twenty-six miles of railroad per day. Already we have two completed lines of railroad stretching across the continent. Under date of October 17, Mr. F. F. Oaks, vice-president of the Northern Pacific Railroad Company, informed me that it is expected that their line will be completed by the beginning of September, 1883; and C. P. Huntington, of the Southern Pacific Railroad Company, informed me, under date of October 3, that the line of the Atlantic and Pacific Railroad Company, intermediate between the Union Pacific and the Southern Pacific railroads, would be completed in about twelve months from that date. We shall then have four lines of railroad across the continent. The consumption of coal, the chief motive power of commerce and of industry, is one of the best indices of the condition of the country. The quantity of coal marketed during the year 1881, the latest year for which we have statistics, amounted to 79,905,000 tons, as against 69,200,934 tons during the preceding year.

The increase of the facilities for telegraphing constitutes another index of progress. The Western Union, the company which owns the principal part of the telegraph lines of the United States, increased its number of miles of wire from 233,534 in 1880 to 374,294 in 1882. The wires operated by that company would reach fifteen times around the world. The popula-

tion of the United States was in 1870 38,558,371, and in 1880 50,155,783—an increase of 11,597,412.

In view of all the cheering evidences of development and of prosperity to which I have referred, every American whose heart swells with the spirit of thanksgiving may exclaim, "I have a goodly heritage."

My friend, Professor John Eaton, Commissioner of Education, states that the number of pupils enrolled in the public schools in 1880 was 9,782,520, constituting sixty-three per cent of the total school population of the United States in 1880. The total number of pupils enrolled in colored public schools in the recent Slave States in 1880 was 784,709 and constituted forty-four per cent of the total colored school population in those States. This is a pretty fair showing, I think, for a population which lately came out of slavery, with its absolute illiteracy, into freedom. It is also creditable to the States of which the enfranchised race are now citizens. I think there are many cheering evidences of the fact that the colored people in the Southern States are advancing as citizens and as workers.

Upright Automatic Freight Train Brake.

INFORMATION of an important character reaches us regarding the improved Upright Automatic Freight Train and other brakes, manufactured by the AMERICAN BRAKE COMPANY, of St. Louis, Mo. The company have seven hundred and eighty cars equipped with their brakes running upon the St. Louis and San Francisco Railway, of which, over two hundred are of the upright pattern. Thirty daily inspections recently ended show that during that period, a total of six hundred and fifty cars had come into the St. Louis depot and yards, and been examined by the company. Of these thirty-two were new, 139 had been running one month, 134 two months, 15 five months, 168 eight months, 123 nine months, 10 ten months, 11 twelve months, 10 fifteen months, and 8 twenty months. Of the total six hundred and fifty running on the lines specified, 601 were found to be in all respects perfect, needing no attention, while the balance of 49 required slight repairs and new pieces put on in the yard. The total cost of the new pieces needed was \$13.88. Only four of the forty-nine repaired were upon the Upright Automatics.

Mr. D. H. Nichols, Springfield, Mo., master of transportation of the St. Louis and San Francisco Railway Company, has recently forwarded to the American Brake Company the following results of tests made of the Upright Automatic Freight Car Brake, on the St. Louis and San Francisco Railway, between Springfield and Strafford, October 29, 1882:—

Speed. Miles per hour.	Distance. Feet.	Time. Seconds.	Grade. Feet.
18	250	32	65-D
18	250	36	70-D
25	356	35	65-D
18	360	26	Level
30	420	41	"
30	412	43	"

Weight of train, 422½ tons. Engine and tender equipped with the American Brake Company's Steam Brake. Sixteen cars in train

equipped with the Improved Upright Automatic Brake.

We are informed the Steam Driver and Tender Brakes of this Company are now being used on over fifty different railroads. The price of these brakes is only \$150.00, and the Company offer to send them to any Railroad Company upon approbation of sixty or ninety days, to be returned at their expense if not satisfactory.

These facts constitute strong testimony as to the economy of using the brakes manufactured by the American Brake Company, of St. Louis.

Dredging Machines for the Panama Canal.

The largest dredging machine ever constructed will be launched in this city within a few weeks. This immense mud digger is one of the three being constructed by Slaven Bros., of California, at Petty's Island, for the Panama Canal Company, the aggregate cost of which will be over \$400,000. The one now so near completion is 100 feet long, sixty feet wide, and twelve feet deep. When all the machinery is in place it will contain 350 tons of iron. On each of the three monster dredges there will be eight separate engines, the pair of high-pressure engines which run the dredge being of 250-horse power each. The dredges are of a new patent and with a series of buckets on an endless chain. There are eighteen of the buckets to each machine, which can dig and dispose of 1,620 cubic yards of dirt in an hour, or a combined capacity per hour for the three dredges of 4,860 cubic yards. Thus in four months, working twelve hours a day, they could dig out 9,290,000 cubic feet, or a canal eighty feet wide, twelve feet deep, and nearly fifty miles long. After the dirt is scooped up in the buckets it is run up the long arm of the dredger fifteen or twenty feet below. The hopper is made of iron, and weighs five and a half tons. From the hopper the dirt is forced by machinery into and through a huge pipe, three feet in diameter and 150 long, to its place of deposit. The pipe has a fall of eighteen feet, and to insure the easy passage of the dirt through it, a heavy stream of water is constantly forced through. The stoppage in the work of digging is never very long. The dredger rests upon a "spud" or pin, upon which it can be revolved without stopping the dredging buckets, thus enabling the operators to dig from side to side at will. The machinery for the first dredger, which was manufactured in California, is now here, and as soon as the hull is launched will be placed on board. Before taking the big digger to Aspinwall a number of preliminary tests will be made with it in the Delaware River. The second dredger will be commenced as soon as the first is launched, and work on the third will be started as soon as the second is finished.

The Canal Construction and Banking Company, of which the Messrs. Slaven are agents, in addition to the building of the dredges, have a contract with Panama Canal Company to dig out ten miles of the canal, for which they are to be paid \$2,000,000. Mr. L. Ward, who is the superintendent of construction in connection with the building of the dredgers in

this city, has just arrived here from the Isthmus of Panama, where he has put up sixty-eight buildings along the route of the proposed canal in connection with this \$2,000,000 contract. He says the work preparatory to the commencement of digging out the great canal is about finished. The canal company has so far spent about \$20,000,000, and he has no doubt that the canal will be completed within the ten years specified by the engineer. There are, he states, about 5,000 men at work.

It is not unlikely that the big dredger, the construction of which Mr. Ward is superintending, may be first experimented upon in starting the work of digging the proposed ship canal across the Delaware and Maryland peninsula. M. A. Slaven, who is president of the California Bank and Construction Company, and his brother, H. B. Slaven, will be in Philadelphia in a few days, having just completed an examination of the route of the proposed Delaware and Maryland Canal with the president of the company, Col. Horace B. Tibbetts, of New York. Col. Tibbetts will sail for Paris soon, where he says capital sufficient to build the canal without Government aid has been guaranteed. His company has charters from Delaware and Maryland to construct the canal by the Sassafraz River route. It is proposed, however, to give the California capitalists an opportunity to invest there, and it is said that the Slavens are favorable to the Delaware and Maryland scheme and will put money in it.—*Philadelphia Record* Nov. 29.

The Coal Trade.

The leading coal-carrying companies make the following reports of their tonnage for the week ending Nov. 25, and for the year to the same date, compared with their respective amounts carried to the same time last year:—

	Week.	1882.	1881.
Phil. and Reading R. R.....	203,018	8,279,861	7,952,888
Schuylkill Canal	19,186	512,275	587,094
Lehigh Valley	138,430	6,188,664	5,691,240
Delaware, Lackawanna and Western	160,516	4,143,193	3,878,186
Shamokin	25,727	1,136,545	971,675
Central R. R. of New Jersey..	.....	3,911,828	3,911,499
United R. R. of New Jersey...	38,470	1,554,928	1,417,875
Pennsylvania Coal.....	36,865	1,296,085	1,287,461
Delaware and Hudson Canal..	93,606	3,248,937	3,266,132
Huntingdon and Broad Top Mountain	8,975	418,935	472,815
Penn. and New York.....	32,289	1,429,229	1,505,276
Clearfield, Pa.....	59,887	2,579,809	2,171,278

The total tonnage of anthracite coal from all the regions for the week ending Nov. 25, as reported by the several carrying companies, amounted to 681,711 tons, against 606,195 tons in the corresponding week last year, an increase of 75,516 tons. The total amount of anthracite mined for the year is 26,282,638 tons, against 25,295,144 tons for the same period last year, an increase of 987,493 tons. The quantity of bituminous coal sent to market for the week amounted to 116,259 tons, against 99,655 tons in the corresponding week last year, an increase of 16,613 tons. The total amount of bituminous mined for the year is 4,025,523 tons, against 4,459,703 tons for the corresponding period last year, a decrease of 434,180 tons. The total tonnage of all kinds of coal for the week is 797,979 tons, against 705,850 tons in corresponding week last year, an increase of 92,129 tons, and the total tonnage for the coal year is 30,308,170 tons, against 29,754,847 tons to same date last year, an increase of 553,323 tons. The quantity of coal and coke carried over the Pennsylvania Railroad for the week ending Nov. 25 was 227,812 tons, of which 161,534 tons were coal and 66,278 tons coke. The total tonnage for the year thus far has been 9,967,317 tons, of which 7,396,326 tons were coal and 2,570,991 tons coke. These figures embrace all the coal and coke carried over the road, east and west. The shipments of bituminous coal from the mines of the Cumberland coal region for the week ended Nov. 25 were 60,880 tons, and for the year to that date 1,282,111 tons, a decrease of 700,079 tons as compared with the corresponding period of last year. The shipments were: To the Baltimore and Ohio Railroad—For the week, 37,507 tons; year, 869,531 tons; decrease as compared with 1881, 390,311 tons. Chesapeake and Ohio Canal—Week, 18,023 tons; year, 214,358 tons; decrease as compared with 1881, 214,358 tons. Pennsylvania Railroad—Week, 4,825 tons; year, 150,270 tons, decrease from last year, 101,174 tons. The Reading Railroad shipment for last week, ending December 2, was about 193,500 tons, of which 52,800 tons were sent to and 40,300 tons shipped from Port Richmond, and 15,800 tons sent to and 15,400 tons shipped from Elizabethport. The Lehigh Valley Railroad reports 68,510 tonnage for the last four days of November, making its aggregate coal tonnage for the fiscal year 6,257,159, compared with 5,791,376 for the previous year, an increase of 465,783 tons.—*Philadelphia Ledger*, Nov. 4.

FOR SALE.

Locomotives—Two Second-hand Narrow-Gauge Engines in good order.
One Second-hand "Tank" Narrow-Gauge Engine, 10 tons. Several Second-hand Standard-Gauge Locomotives in good order, immediate delivery.
One new 3 ft. Gauge Passenger Engine, 22 tons, prompt delivery.
Six new 4 ft. 8½ Gauge Locomotives, cylinders 17x24, weight 35 tons. November and December delivery.
Two new 3 ft. Gauge Locomotives, Cylinders 12x18, weight 20 tons. December and January delivery.
Cars—Passenger and Freight Cars of all descriptions for early delivery.
Rails—16lb., 20lb., 30lb., 35lb. and 56lb. Rails.
Car Wheels and Axles.
Narrow-Gauge Rolling-stock a specialty.

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RAILWAY VARNISHES,

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Fine Brushes adapted for Railroad use. All kinds of Artists' Materials. Colors for ready use, and all specialties for Railroad and Carriage purposes.

Railroad companies will save themselves great trouble in painting by allowing F. W. DEVOE & Co. to prepare their Passenger and Freight Car Colors. This will insure Durability, Uniformity and Economy. F. W. DEVOE & Co., manufacture from the crude materials, which are the component parts of any shade, and they understand better their chemical relationship, when in combination, than can be possible to those who simply buy their dry materials and then grind them.

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Cor. of Fulton and William Sts.
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Continuous Automatic

FREIGHT BRAKES.

Requiring no other Connection
between Cars than the ordinary Coupling-Link
and Pin.

SIMPLE, DURABLE, AND EFFICIENT.

Brakes can be applied to every Car in the longest train, from the engine or caboose, or from any car in the train. It can be readily attached to any car, and adapted to ordinary brake beams, shoes, etc. There is no possibility of damaging wheels by "sliding."

PATENTED MAY 23, 1882.

Railroad and manufacturing companies, or parties able to co-operate with patentee in their manufacture and introduction, are invited to correspond with

WM. C. SCHULTZE,
Surgeon C., R. I. and P. Ry.
MARENGO, Iowa Co., Iowa.

RAILROAD AND CANAL DIVIDEND STATEMENT.

Showing the amount of Stock Outstanding, the Dividend Periods and the date of last Dividend.

Marked thus (*) are leased roads.	Stock outstanding.	Divide'd Periods.	Last Dividend Payable.	Marked thus (*) are leased roads.	Stock outstanding.	Divide'd Periods.	Last Dividend Payable.	Marked thus (*) are leased roads.	Stock outstanding.	Divide'd Periods.	Last Dividend Payable.
Albany and Susq*.....100	2,500,000	semi-an	July '82 2	Little Miami.....50	4,637,300	q'arterly	Sept. '82 2	Ware River*.....100	750,000	semi-an.	July '82 3 1/2
Ashuelot.....100	210,000	q'arterly	Oct. '81 3 1/2	Little Rock & Ft. S.....100	4,096,135	q'arterly	July '81 10 8	Warren (N. J.).....100	1,800,000	semi-an.	Apl. '82 3 1/2
Aitch., Top. and S. Feio.....100	54,000,000	q'arterly	Nov. '82 1 1/2	Little Schuylkill*.....50	2,646,100	semi-an.	July '82 3 1/2	Warwick Valley.....100	340,000	semi-an.	July '82 2 1/2
Atlanta and W. Point.....100	1,832,300	semi-an	Jan. '82 6	Long Island.....50	10,000,000	q'arterly	Nov. '82 1	Westchester & Phil. pref.....100	821,300	semi-an.	July '80 2
Atlantic and St. Law*.....100	5,840,000	semi-an	Mar. '82 3	Louisville & Nashv.....100	19,130,913	semi-an.	Feb. '82 3	West Jersey.....100	1,359,750	semi-an.	Sept. '82 3
Augusta and Savannah.....100	1,022,900	semi-an	June '81 3 1/2	Lowell & Andover.....100	500,000	semi-an.	Jan. '82 3 1/2	Wilmingt'n & Weld'n.....100	1,456,200	semi-an.	July '82 3
Avon, Genesee & Mtn*.....100	225,000	semi-an	July '81 3	Lykens Valley.....100	600,000	q'arterly	Oct. '81 2 1/2	Wil., Col., & Aug.....100	960,000	semi-an.	July '82 3
Baltimore and Ohio.....100	14,792,566	semi-an	Nov. '82 5	Manchester & Law.....100	1,000,000	semi-an.	Nov. '82 5	Winchester & Poto*c.....100	180,000	semi-an.	July '82 3
" pref.....100	5,000,000	semi-an	July '82 3	Manhattan.....100	13,000,000	q'arterly	Oct. '82 1 1/2	Winchester & Strasb.*.....100	74,700	semi-an.	July '82 8
Berkshire.....100	1,650,000	semi-an	Nov. '82 5	" 1st pref.....100	6,500,000	q'arterly	Oct. '82 1 1/2	Worcester & Nashua. 75	1,789,800	semi-an.	July '82 1 1/2
Boston and Albany.....100	600,000	q'arterly	Apl. '82 1 1/2	" 2d pref.....100	6,500,000	q'arterly	Oct. '82 1 1/2				
Bos. & N. Y. Air Line pf.....100	2,795,227	q'arterly	June '82 1	Marietta & Cincinnati.....100	1,866,350	q'arterly	Oct. '82 1 1/2				
Bos., Cl. F. & N. B. pref.....100	1,750,100	semi-an	Oct. '82 3 1/2	" 1st pref.....100	8,105,600	semi-an.	Sep. '66 38	Albany City.....100	200,000	annual	Oct. '80 5 1/2
Bos., Conc. & Mont. pf.....100	800,000	semi-an	Nov. '82 3	" 2d pref.....100	4,440,000	semi-an.	Sep. '66 38	Baltimore City.....25	1,000,000	semi-an.	Oct. '82 3
Boston and Lowell.....500	3,040,000	semi-an	July '82 2	Marq. Hout. & Ont. pf.....100	2,259,026	q'arterly	Aug. '82 4	Balt., Cat. & El. Mills.....100	900,000	semi-an.	July '82 1 1/2
Boston and Maine.....100	6,221,274	semi-an	Nov. '82 4	Massawippi*.....100	400,000	semi-an.	Aug. '82 3	Bleeker St. & Ful. F'y.....100	110,000	semi-an.	Oct. '82 3
Boston & Providence.....100	4,000,000	semi-an	Nov. '82 4	Metropolitan.....100	6,500,000	q'arterly	Oct. '82 1 1/2	Boston & Chelsea pref.....50	250,000	q'arterly	Oct. '82 3
Attleborough Br.....100	1,311,700	semi-an	July '82 3 1/2	Michigan Central.....100	87,738,204	q'arterly	Aug. '81 1	Broadway (Brooklyn).....100	2,500,000	q'arterly	Oct. '82 2
Bos., Bevers B. & Lynn*.....100	479,400	semi-an	July '82 3 1/2	Middlesex.....100	280,000	semi-an.	Aug. '82 3	B'way & 7th Av. (N. Y.).....100	2,100,000	q'arterly	Oct. '82 2
Buffalo, N. Y. & Erie*.....50	950,000	semi-an	June '82 3	Mill Creek & Minehill*.....50	323,000	semi-an.	July '82 5	B'klyn & Hunter's Pt. 100	400,000	semi-an.	Oct. '82 6
Camden & Atlantic.....50	377,400	q'arterly	Nov. '82 3	M. Hill & Schuyl. Hav*.....50	4,022,500	semi-an.	July '82 3 1/2	Brooklyn City.....100	2,000,000	q'arterly	Nov. '82 3 1/2
" pref.....50	880,650	q'arterly	Nov. '82 3	Missouri Pacific.....100	28,169,800	q'arterly	Oct. '82 1 1/2	Bushwick (Brooklyn).....100	309,000	semi-an.	Oct. '82 6
Camden & Burl. Co.....50	381,925	semi-an	July '82 3	Mobile & Montgomery.....100	3,022,517	semi-an.	Feb. '80 2 1/2	Cambridge.....100	908,000	q'arterly	Oct. '82 4 1/2
Canada Southern.....100	15,000,000	q'arterly	July '82 3	Morris and Essex.....50	15,000,000	semi-an.	July '82 3 1/2	Cen. Park N. & E. Riv. 100	1,800,000	q'arterly	Oct. '82 6
Cape May & Millville*.....50	447,000	semi-an	June '81 3	Mt. Carbon & Pt. Carbon.....50	282,350	semi-an.	July '82 6	Christoph' & Tenth St 100	650,000	semi-an.	Aug. '82 2 1/2
Catawissa*.....50	1,159,500	annual	Oct. '82 2 1/2	Nashua and Lowell.....100	800,000	semi-an.	Nov. '82 4	Citizens' (Phil.).....50	192,500	q'arterly	Jan. '82 2 1/2
" pref.....50	2,200,000	semi-an	Nov. '82 3 1/2	Nashua & Rochester.....100	1,305,800	semi-an.	Oct. '82 1 1/2	Citizens' (Pbg.).....50	200,000	annual	Oct. '80 1 1/2
" new pref.....50	1,000,000	semi-an	Nov. '82 3 1/2	Nashv. & Decatur.....100	1,827,000	semi-an.	Aug. '81 3	Coney Island & Bklyn 100	500,000	semi-an.	Oct. '80 5
Cayuga and Susq*.....50	589,110	semi-an	July '81 4 1/2	Nashv., Chat. & St. Louis 25	6,070,325	semi-an.	Apl. '82 1 1/2	Continental (Phil.).....50	580,000	semi-an.	Jan. '83 6
Cedar Rapids & Mo. R*.....100	769,600	q'arterly	Nov. '82 1 1/2	Naugatuck.....100	2,000,000	semi-an.	July '82 5	D. Dock, E. B. way & Batrol 100	1,200,000	q'arterly	Aug. '82 4
" pref.....100	769,600	semi-an	Aug. '82 3 1/2	Nesquehoning Val*.....50	1,300,000	semi-an.	Sept. '82 3	Elgin Av. (N. Y.).....100	1,000,000	q'arterly	Oct. '82 3
Central of Georgia.....100	7,500,000	semi-an	Aug. '82 3	N. Castlet Beaver Val*.....50	600,000	q'arterly	Oct. '81 1	42d St. & G. St. Ferry 100	747,000	semi-an.	May '82 6
Central of New Jersey.....100	18,563,300	q'arterly	July '76 2 1/2	New London North*.....100	1,500,000	q'arterly	July '82 1 1/2	Frank & Southw. (Ph) 50	600,000	q'arterly	Oct. '82 2 1/2
Central Ohio.....50	2,437,950	semi-an	July '82 3	N. Y. Cen. & Hud. R.....100	89,428,330	q'arterly	Oct. '82 2	Germantown, (Ph.).....50	572,800	q'arterly	Oct. '82 2 1/2
" pref.....50	411,550	semi-an	July '82 3	N. Y. & Harlem.....100	7,950,000	q'arterly	July '82 4	Girard College (Ph.).....50	500,000	semi-an.	July '71 3
Central Pacific.....100	59,275,500	semi-an	Aug. '82 3	" pref.....100	1,500,000	q'arterly	July '82 4	Grand St. & Newton. 100	170,091	semi-an.	July '81 2 1/2
Chemung*.....100	380,000	q'arterly	July '81 1 1/2	N. Y., Lake Erie & West.....100	77,087,600	annual	Apl. '82 3	Green & Coates St. (Ph) 50	150,000	q'arterly	Oct. '82 3
Cheshire preferred.....100	1,255,300	semi-an	July '82 1 1/2	" pref.....100	77,087,600	annual	Jan. '83 6	Heston, Mantau & F'm 50	209,381	semi-an.	Jan. '75 4
Chicago and Alton.....100	1,181,741	semi-an	Sept. '82 4	N. Y., N. H. & Hart.....100	15,500,000	semi-an.	July '82 5	Highland.....100	600,000	semi-an.	July '82 4
" pref.....100	2,245,400	semi-an	Sept. '82 4	N. Y., Prov. & Boston.....100	3,000,000	q'arterly	Nov. '82 2	Lomb. & South St. (Ph) 25	195,000	semi-an.	Oct. '75 4
Chi., Burl. & Quincy.....100	55,337,455	q'arterly	Dec. '82 2	Niag. Bridge & Canand*.....100	1,000,000	semi-an.	July '81 3	Lynn and Boston.....100	200,000	semi-an.	Nov. '82 4
Chi., Iowa & Nebras*.....100	3,916,200	semi-an	July '82 4	North Carolina*.....100	3,000,000	semi-an.	Sept. '81 3	Malden and Melrose.....100	165,000	semi-an.	July '82 4
Chi., Mil. & St. Paul.....100	20,404,261	semi-an	Oct. '82 3 1/2	" pref.....100	1,000,000	semi-an.	Sept. '81 3	Metropolitan (Bost.).....100	1,500,000	semi-an.	Nov. '82 3 1/2
" pref.....100	14,401,483	semi-an	Oct. '82 3 1/2	N. Eastern (S. C.) pref.....100	86,000	semi-an.	May '81 4	Middlesex (Boston).....100	650,000	semi-an.	Nov. '82 3 1/2
Chi. & N. Western.....100	14,988,257	semi-an	Dec. '82 2	Norfolk & Western pref.....100	15,000,000	q'arterly	Dec. '82 1	N. Y., Bay Ridge & Jam 100	150,000	semi-an.	Oct. '78 7
" pref.....100	21,525,353	q'arterly	Dec. '82 2	Northern Pennsylvania.....50	4,527,150	q'arterly	Nov. '82 1 1/2	Ninth Av. (N. Y.).....100	797,320	semi-an.	Oct. '78 7
Chi., R. I. & Pacific.....100	41,960,000	q'arterly	Nov. '82 1 1/2	Northern Central.....50	6,142,000	semi-an.	July '82 3	Orange & Newark.....100	282,555	semi-an.	Oct. '78 7
Chi. and West Mich.....100	6,151,000	semi-an	Feb. '82 2 1/2	Northern N. Hampsh.....50	6,333,400	semi-an.	Dec. '82 3	People's (Phila.) pref.....25	124,744	semi-an.	July '82 2
Chi., St. P., M. & O. pref.....100	10,390,000	q'arterly	Oct. '82 1 1/2	Northern N. Hampsh.....50	6,333,400	semi-an.	Dec. '82 3	Philadelphia City.....50	475,000	semi-an.	July '82 1 1/2
Cl., Ind., St. L. & Chi.....100	6,000,000	q'arterly	July '82 1 1/2	Northern Pacific pref.....100	42,312,589	semi-an.	Jan. '83 11.1	Phila. and Darby.....20	200,000	semi-an.	July '81 3 1/2
Cin., Sand. & Clev. pf.....50	429,037	semi-an	Nov. '82 3	Norwich & Worcester.....100	2,604,400	semi-an.	Jan. '83 5	Phila. & Grey's Ferry.....50	308,000	semi-an.	Jan. '82 6
Clev. and Mahoning*.....50	3,759,200	semi-an	Nov. '81 3 1/2	Ohio and Miss. pref.....100	4,030,000	semi-an.	Mar. '75 3 1/2	Pbg. Alleg. & Manches.....50	300,000	q'arterly	Oct. '81 3
Clev. and Pittsburg*.....50	12,244,336	q'arterly	Dec. '82 1 1/2	Old Colony.....100	7,333,800	semi-an.	July '82 3 1/2	Ridge Avenue (Ph.).....50	420,000	semi-an.	Oct. '81 11
Columbus & Xenia*.....50	1,766,200	q'arterly	Sept. '82 2	Oregon R'way & Nav.....100	6,000,000	q'arterly	Nov. '82 2	Second Avenue (N. Y.) 100	1,199,500	semi-an.	July '82 4
Colum. & Hocking Val.....100	2,500,200	semi-an	Aug. '81 20 8	Oswego & Syracuse.....100	1,320,400	semi-an.	Aug. '81 4 1/2	Second & Third St. (Ph) 50	771,076	q'arterly	Jan. '82 1 1/2
Concord.....100	1,500,000	semi-an	Nov. '82 5	Panama.....100	7,000,000	semi-an.	July '82 6 1/2	17th & 19th sts. (Ph) 50	250,000	semi-an.	July '81 3
Concord and Ports*.....100	350,000	semi-an	July '82 3 1/2	Paterson & Hudson*.....100	630,000	semi-an.	July '82 4	Sixth Avenue (N. Y.) 100	750,000	semi-an.	May '82 3
Conn. & Passump. Riv.....100	2,244,400	semi-an	Aug. '82 3	Paterson & Ramapo.....100	248,000	semi-an.	July '82 4	Somerville (Boston).....100	113,000	semi-an.	Nov. '82 3
Connecticut River.....50	2,100,000	semi-an	July '82 4	Pember. & Hightst'n*.....50	342,150	semi-an.	Jan. '82 3	South Boston.....50	600,000	semi-an.	July '82 4
Cumberland Valley.....50	1,292,950	q'arterly	Oct. '82 2 1/2	Pennsylvania.....50	83,786,570	semi-an.	Nov. '82 4 1/2	Third Avenue, N. Y.....100	2,000,000	q'arterly	Aug. '82 5
" 1st pref.....50	241,900	semi-an	Apl. '82 4	Pennsylvania Co.....50	20,000,000	semi-an.	June '81 2 1/2	13th and 15th sts. Ph 50	334,529	q'arterly	Jan. '82 4
" 2d pref.....50	243,000	semi-an	Apl. '82 4	Peoria & Bureau Val*.....100	1,200,000	semi-an.	Feb. '82 4	Union, Boston.....100	600,000	semi-an.	Aug. '82 4
Danbury & Norwalk.....50	600,000	semi-an	Oct. '82 2 1/2	Philadelphia & Erie*.....50	7,013,700	semi-an.	Sept. '82 4	Union, Phila.....100	374,300	semi-an.	Jan. '82 4
Dayton and Mich.*.....50	2,402,573	semi-an	Apl. '82 1 1/2	Phil. Ger. & Norrist'n*.....50	2,400,000	q'arterly	Sept. '82 3	West Philadelphia.....50	1,005,000	semi-an.	Jan. '82 7
" pref.....50	1,211,250	q'arterly	July '82 2	Phil. and Reading.....50	2,231,900	q'arterly	Jan. '76 2 1/2				
Del. & Bound Brook.....25	1,468,940	q'arterly	Nov. '82 1 1/2	" pref.....50	32,726,375	q'arterly	Jan. '76 2 1/2				
Del., Lack. & Western.....100	1,652,000	q'arterly	Nov. '82 1 1/2	Phila. and Trenton.....100	1,551,800	q'arterly	July '76 3 1/2				
Denver & Rio Grande.....100	26,200,000	q'arterly	Oct. '82 2	Phila., Wil. and Balt.....100	1,259,100	q'arterly	Jan. '82 2 1/2				
Detroit, Ians. & Nor.....100	1,825,600	semi-an	Aug. '80 2 1/2	Pittsb., Ft. W. & Chi*.....100	11,585,750	semi-an.	Oct. '82 1 1/2	Chesapeake and Dela.....50	2,078,038	semi-an.	June '75 2
" pref.....100	2,503,380	semi-an	Aug. '82 3 1/2	Special Imp.....100	19,714,285	q'arterly	Oct. '82 1 1/2	Delaware Division.....50	1,633,350	semi-an.	Aug. '82 1 1/2
Dubuque & Sioux C'y*.....50	5,000,000	semi-an	Oct. '82 3	Pittsfield & N. Adams.....100	6,770,900	q'arterly	Oct. '82 1 1/2	Delaware & Harlan*.....100	5,847,400	q'arterly	Jan. '82 3 1/2
East Pennsylvania*.....50	1,709,550	semi-an	Jan. '83 3	Portl., Saco & Portsmouth.....100	450,000	semi-an.	July '82 3	Delaware & Harlan*.....100	5,847,400	q'arterly	Jan. '82 3 1/2
East Mahanoy*.....50	392,950	semi-an	July '82 3	Providence & Worces.....100	2,000,000	semi-an.	July '82 3	Lehigh Coal and Nav.....50	11,204,250	semi-an.	Dec. '82 3
Eastern (N. H.).....100	492,500	semi-an	Dec. '82 2 1/2	Rensselaer & Saratog*.....100	7,000,000	semi-an.	July '82 4	Monongahela Nav.....50	1,004,500	semi-an.	July '82 3
El River.....100	3,000,000	q'arterly	Dec. '82 1 1/2	Rhode Island & Mass.....100	100,000	semi-an.	Jan. '81 3	Morris, consolidated.....100	1,025,000	semi-an.	Aug. '82 2
Elmira & Williampt*.....50	500,000	semi-an	Nov. '82 1 1/2	Richmond & Danv.....100	3,866,000	q'arterly	Aug. '82 2	" preferred.....100	1,175,000	semi-an.	Aug. '82 5
" pref.....50	500,000	semi-an	July '82 3 1/2	Richmond & Petersbro.....100	1,009,300	semi-an.	Jan. '81 3	Pennsylvania.....50	4,501,200	semi-an.	Oct. '82 50 1/2
Evansville & Terre H.....100	1,998,400	q'arterly	June '82 1 1/2	Roch. & Genesee Val*.....100	555,200	semi-an.	July '82 3	Schuyl. Nav., com. pf.....50	859,100	annual	Oct. '82 50 1/2
Fitchburg.....100	4,500,000	semi-an	Jan. '83 3	Rutland preferred.....100	400,000	semi-an.	Sept. '82 1				
F. & P. Marquette pf.....100	6,500,000	semi-an	July '82 3	St. L., Alt. & T. Haute.....100	2,300,000	semi-an.	May '82 3				
Ft. W. & Jackson pref.....100	2,000,000	semi-an	May '82 2	" pref.....100	2,468,406	semi-an.	Aug. '82 3 1/2	Adams Express.....100			

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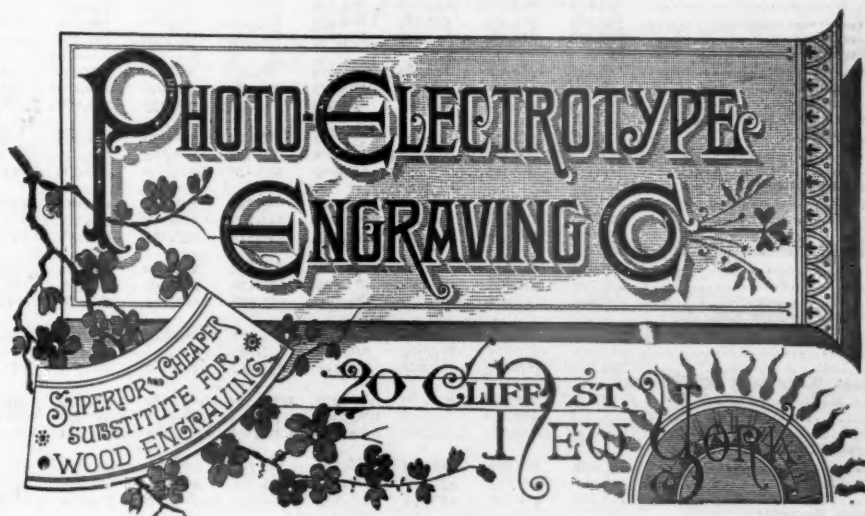
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RAILROAD EARNINGS—MONTHLY.

	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
BURL., CEDAR RAP. & NORTHERN:													
1880.....	184,316	165,170	188,325	141,632	149,504	153,378	143,432	160,160	179,804	204,991	189,330	193,419	2,053,484
1881.....	167,750	124,510	148,551	184,680	165,630	205,912	174,351	209,112	221,801	221,748	203,880	232,812	2,259,037
1882.....	252,823	225,631	224,107	178,304	199,278	211,257	198,476	224,921	261,439	300,155	.....	.....	.....
CENTRAL PACIFIC:													
1880.....	1,200,615	1,070,487	1,373,438	1,356,716	1,778,488	1,724,930	1,840,067	1,973,438	1,994,997	1,120,229	2,199,466	1,905,221	20,508,113
1881.....	1,602,907	1,454,218	1,704,638	1,872,370	2,091,411	2,159,382	1,899,346	2,088,519	2,185,303	2,507,857	2,297,971	2,225,179	24,094,101
1882.....	1,839,469	1,720,675	1,969,737	2,054,687	2,342,298	2,229,105	2,020,000	2,277,000	2,474,000	2,409,000	.....	.....	.....
CLEVELAND AND OHIO:													
1880.....	202,335	198,681	222,762	221,559	199,443	214,352	238,236	259,110	247,303	211,820	240,795	218,009	2,674,308
1881.....	162,540	184,389	228,479	227,343	252,235	241,135	225,096	262,858	247,144	236,306	235,585	203,562	2,702,762
1882.....	210,455	209,708	208,981	267,454	255,939	260,753	306,831	371,175	332,219	347,882	.....	.....	.....
CHICAGO AND ALTON:													
1880.....	534,054	497,013	626,473	549,961	616,128	617,524	708,906	761,120	767,349	785,199	666,776	574,695	7,718,198
1881.....	487,890	461,641	529,915	558,190	548,556	633,860	676,205	769,751	774,790	771,844	680,133	635,307	7,553,988
1882.....	530,447	530,480	584,483	561,787	553,412	613,886	671,537	800,624	881,109	812,032	.....	.....	.....
CHICAGO AND NORTHWESTERN:													
1880.....	1,154,632	1,131,683	1,361,725	1,294,573	1,875,608	1,671,177	1,690,686	1,767,938	2,020,245	2,105,217	1,855,622	1,477,902	19,416,007
1881.....	1,240,664	963,204	1,178,795	1,474,612	1,879,006	2,306,440	1,983,032	2,315,164	2,292,676	2,341,098	2,019,038	1,855,477	21,849,209
1882.....	1,644,935	1,474,176	1,672,931	1,668,741	2,110,947	2,022,700	2,025,736	2,099,755	2,497,053	2,532,102	2,069,500	.....	.....
CHICAGO, BURLINGTON AND QUINCY:													
1880.....	1,432,740	1,411,870	1,732,518	1,489,894	1,909,627	1,682,956	1,773,643	1,834,321	1,862,285	1,934,762	1,837,860	1,552,018	20,454,494
1881.....	1,307,948	1,034,821	1,418,149	1,574,371	1,679,455	2,083,803	1,888,358	2,173,945	2,262,981	2,031,001	1,816,133	1,905,490	21,324,150
1882.....	1,658,834	1,457,300	1,566,217	1,530,838	1,505,261	1,437,164	1,625,000	2,086,858	2,186,400	.....	.....	.....	.....
CHICAGO, MILWAUKEE AND ST. PAUL:													
1880.....	764,298	738,749	900,675	871,041	1,134,745	1,037,958	1,026,708	991,297	1,257,677	1,493,620	1,472,037	1,397,308	13,086,119
1881.....	990,847	882,717	916,989	1,259,946	1,538,491	1,729,811	1,568,706	1,678,301	1,644,676	1,591,052	1,569,597	1,855,000	17,025,462
1882.....	1,435,000	1,377,000	1,561,000	1,518,000	1,629,000	1,620,000	1,465,000	1,545,000	1,950,000	2,251,000	2,071,000	.....	.....
CHICAGO, ST. PAUL, MINNEAPOLIS AND OMAHA:													
1880.....	193,827	173,078	259,783	259,208	322,146	218,093	236,995	251,013	300,833	342,052	342,894	312,173	3,122,097
1881.....	257,786	158,594	251,648	261,211	350,124	404,502	383,202	385,586	373,370	379,029	380,733	391,950	3,981,296
1882.....	307,498	315,100	405,779	356,558	406,420	363,109	331,480	394,555	482,997	546,671	.....	.....	.....
CINCINNATI, INDIANAPOLIS, ST. LOUIS AND CHICAGO:													
1880.....	155,697	172,541	198,220	186,199	186,995	200,332	204,138	233,478	343,627	239,881	209,014	198,254	2,412,185
1881.....	182,523	171,511	191,005	163,710	191,066	192,299	177,101	229,858	228,653	221,320	194,805	192,623	2,296,916
1882.....	200,042	186,879	208,066	204,269	199,110	195,948	209,564	.....	259,379	.....	.....	.....	.....
DENVER AND RIO GRANDE:													
1880.....	124,759	126,922	160,883	164,882	193,295	205,455	373,132	400,133	406,583	473,318	408,562	349,196	3,478,007
1881.....	307,476	317,681	398,493	433,111	514,767	584,230	548,284	606,193	589,287	638,432	512,965	643,417	6,206,812
1882.....	491,914	412,987	535,055	559,917	614,298	537,462	495,797	574,040	595,306	630,598	547,055	.....	.....
HANDBALD AND ST. JOSEPH:													
1880.....	176,079	166,065	216,061	206,735	191,137	179,396	224,312	238,081	233,448	242,214	207,147	279,635	2,561,366
1881.....	154,401	122,874	176,356	190,812	179,950	190,740	201,899	210,240	215,103	195,619	180,376	2,230,961	.....
1882.....	138,284	154,717	168,798	148,913	154,917	155,030	184,347	258,628	239,196	238,442	249,225	.....	.....
ILLINOIS CENTRAL:													
1880.....	595,212	613,806	613,008	535,732	665,120	681,736	724,095	732,755	806,836	880,211	783,120	673,182	8,304,812
1881.....	512,281	524,499	557,789	662,493	673,259	803,887	720,004	868,407	828,847	815,238	737,218	763,475	8,586,397
1882.....	728,173	689,387	695,371	674,603	674,749	663,746	752,251	813,600	828,238	865,325	.....	.....	.....
INDIANA, BLOOMINGTON AND WESTERN:													
1880.....	80,498	89,690	116,185	90,374	85,733	106,954	103,438	116,732	110,622	121,343	95,621	104,619	1,233,079
1881.....	83,261	89,085	102,085	90,677	100,764	109,846	109,125	127,114	127,322	200,450	156,697	.....	.....
1882.....	195,824	175,755	206,235	205,934	182,554	186,133	206,072	278,814	273,160	269,046	256,998	.....	.....
LOUISVILLE AND NASHVILLE:													
1880.....	674,455	575,035	612,593	565,883	655,014	976,229	772,538	827,089	931,911	1,000,327	953,087	949,185	9,491,346
1881.....	812,118	805,122	947,959	853,704	828,726	1,227,885	817,135	876,192	951,566	1,002,950	1,065,223	1,153,779	11,344,361
1882.....	964,527	960,315	1,068,834	953,603	958,130	1,215,490	1,063,705	1,043,912	1,107,985	1,216,215	.....	.....	.....
MOBILE AND OHIO:													
1880.....	250,116	204,095	168,302	140,091	129,248	121,855	131,621	140,593	184,247	264,714	251,368	287,372	2,273,622
1881.....	224,347	216,768	230,916	163,551	145,803	156,517	135,549	160,789	210,262	262,986	258,812	240,324	2,403,224
1882.....	159,676	158,590	148,166	141,957	134,378	136,184	136,398	140,443	160,031	205,201	295,110	.....	.....
NASHVILLE, CHATTANOOGA AND ST. LOUIS:													
1880.....	205,634	191,154	169,457	155,466	158,839	144,130	151,594	169,326	167,473	178,262	182,087	175,966	2,049,484
1881.....	178,143	190,866	207,710	183,595	184,430	154,549	150,430	168,317	179,979	172,121	152,059	173,127	2,075,256
1882.....	156,994	159,961	161,005	154,155	135,556	119,074	160,991	168,304	168,999	180,319	.....	.....	.....
NEW YORK AND NEW ENGLAND:													
1880.....	164,232	149,907	183,845	179,689	183,701	219,891	205,056	249,885	235,642	215,491	210,856	198,108	2,396,302
1881.....	189,749	173,614	212,019	191,913	217,185	231,518	246,821	280,524	299,573	216,200	240,764	237,729	2,809,255
1882.....	213,840	217,261	265,222	263,544	283,244	290,060	300,920	353,726	338,490	310,145	276,183	.....	.....
NEW YORK, LAKE ERIE AND WESTERN:													
1879.....	1,147,173	1,207,301	1,356,780	1,372,755	1,350,574	1,230,419	1,273,533	1,450,223	1,492,497	1,713,697	1,515,835	1,398,224	16,509,127
1880.....	1,296,381	1,252,218	1,644,958	1,643,151	1,592,544	1,661,812	1,606,874	1,786,417	1,786,417	1,899,910	1,799,338	1,726,788	19,149,361
1881.....	1,443,437	1,425,765	1,847,261	1,709,057	1,776,891	1,794,982	1,787,081	1,772,895	1,734,200	.....	.....	.....	.....
NORTHERN CENTRAL:													
1880.....	334,494	330,860	415,325	386,130	329,788	419,103	450,298	453,923	464,093	512,918	459,054	494,310	5,050,387
1881.....	386,157	382,657	452,906	487,273	465,588	467,267	440,811	498,008	429,505	449,664	487,160	476,622	5,443,697
1882.....	407,368	413,551	430,194	435,129	482,607	482,792	509,663	667,488	592,435	550,225	.....	.....	.....
NORTHERN PACIFIC:													
1880.....	81,390	77,259	119,357	185,700	217,613	253,105	241,277	223,500	330,300	358,456	300,822	220,993	2,629,710
1881.....	116,508	78,803	162,984	216,210	212,705	412,024	393,260	434,085	534,363	563,555	475,640	434,331	4,044,576
1882.....	239,800	269,000	384,000	436,000	568,332	631,342	799,240	727,377	789,700	834,600	761,321	.....	.....
PHILADELPHIA AND ERIE:													
1880.....	224,307	245,372	327,678	334,947	311,470	331,024	308,699	347,532	322,737	367,082	324,966	281,919	3,727,733

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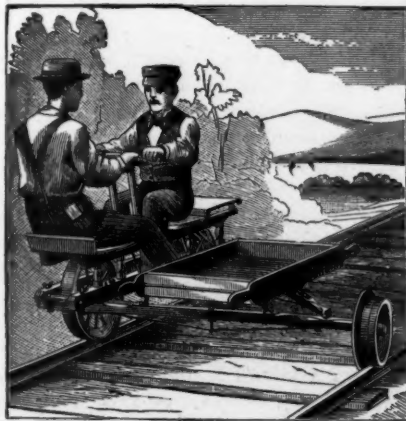
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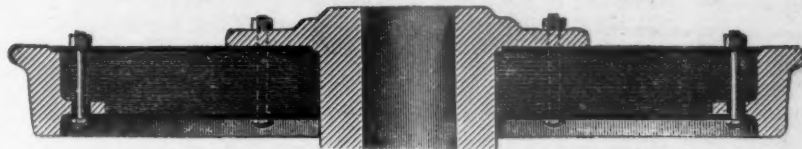
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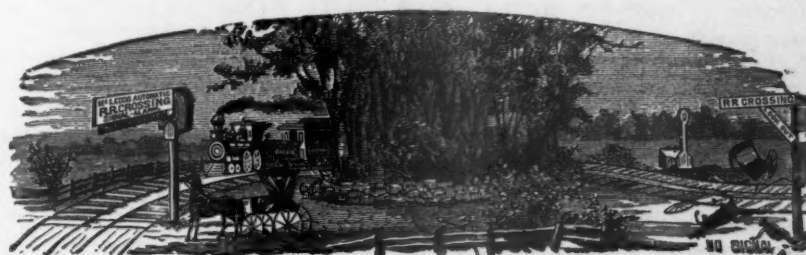
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CANADIAN DEPARTMENT.

MR. JAMES J. WHITE, Ottawa, Canada, writer of "Our Canadian Letter," acts as agent for the AMERICAN RAILROAD JOURNAL COMPANY, in Canada. He is authorized to receive, in behalf of the company, subscriptions and advertisements for this journal: also news of the character which he can utilize in the preparation of his Letter, or send to us for use elsewhere within these columns. He respectfully invites information concerning Railroad matters generally, Mining, Banking, Finance and Manufactures.

OUR CANADIAN LETTER.

[From our Special Correspondent.]

A MEETING of the Canada Southern Railroad shareholders was held in St. Thomas Thursday last, to confirm the arrangement with the Michigan Central—James H. Tillinghast, Esq., representing the Vanderbilt interest; General Manager W. P. Taylor and other officers of the Canada Southern Railroad. The Michigan Central representatives and Hon. Adam Crooks were present. Mr. Tillinghast, in reply to a St. Thomas delegation, assured them that the interests of St. Thomas would not suffer from the new arrangements. The audit and mileage offices might be removed, but a large additional number of trainmen would be engaged, and the workshops increased. What the city lost in offices would be made up by the increase in other departments. After the delegation withdrew, a vote was taken upon the object for which they had met, and the arrangements were almost unanimously agreed to. The traffic agreements, etc. between the Michigan Central Railroad and Canada Southern Railway, will form with the New York Central an uninterrupted through line between Chicago and New York. The shareholders also gave their consent to an agreement being made to form a connection with the London Junction and Credit Valley.

Representatives of the Hudson Bay Railroad Company, the Winnipeg and Hudson Bay Railroad and Steamship Company, and the railroad from the Forks of the Saskatchewan and Fort Churchill, have been interviewing the Government to secure a land grant subsidy for their respective roads.

The following Order in Council comes into immediate operation:—

Whereas by Order in Council of 19th day of May, 1881, it is ordered that all importations of spirits in casks containing one hundred gallons or over made by railway shall be and they are hereby excepted from the operation of the 82nd section of the Act 40 Vict., chap. 10.

The Honorable the Deputy of His Excellency the Governor-General in Council has been pleased to order, and it is hereby ordered, that the said regulation be amended, and that importations of spirits in casks of not less than thirty-five (35) imperial gallons capacity, when for the purpose of being manufactured into other articles under regulations and surveillance of the Department of Inland Revenue, may also be excepted from the operation of said Act.

The Vaudreuil and Prescott Railroad has applied for incorporation. Also the Niagara Falls Double-track Bridge Company to construct and

maintain a bridge across the Niagara River at some point between Suspension Bridge and Niagara. Also the Gooderham and Worts Distilling Company, of Toronto, with capital of \$2,000,000. Also for an Act to incorporate a company for the purpose of laying a cable and building a telegraph line from some point on the west coast of Ireland or Scotland, by way of Greenland, Hudson's Straits, Hudson Bay, Fort Churchill, Athabasca Lake and the Peace River, to some point on the coast of the Pacific Ocean, in the vicinity of Fort Simpson, with power to extend thence northwesterly to a point of junction with the Russian telegraph system.

INDUSTRIAL AND OTHER NOTES.

Lieutenant Gordon, R. N., and F. L. Blake, D. L. S., have completed arrangements at Ottawa, for taking observations of the transit of Venus on the 6th of December.

The North Shore Railway will apply to the Quebec Legislature for power to increase their capital by five millions.

The Waterloo and Magog Railway will extend their line from Magog to Sherbrook, and have advertised for tenders for present construction.

The axe factory at Belleville, Ontario, is employing ninety men, and is over-run with orders.

The lumber mills of the Ottawa Valley, including Ottawa, are now shut down. During the past season, which has been very brisk, it is estimated that 800,000,000 feet were cut.

A serious fire took place in Quebec Thursday morning last. The loss will reach \$150,000. The asbestos factory of A. Joseph & Sons was entirely destroyed, and the loss very heavy, about \$80,000 insurance on different properties, divided among Canadian and English companies.

Montreal has commenced a crusade against the factories for "the smoke nuisance." Pillow, Hersey & Co., iron foundries, were fined \$5 or eight days; but they have appealed on the ground of unconstitutionality of the Act and the by-law under which the decision was given.

The schooner "Henry Folger" went ashore on Salmon Point Reef, Thursday night. All hands, eight in number, were lost. She was owned at Clayton, a "canaler," cost \$12,000, and insured in Aetna for \$10,000; cargo of coal from Cleveland to Brockville also insured. Salmon Bay is sixty miles from Kingston and a life-saving station should be established there.

At a special meeting of the shareholders of the Canadian Pacific Railway held in Montreal Tuesday, November 28, it was resolved to increase the capital of the company from \$15,000,000 to \$100,000,000. Messrs Kennedy and Bliss, of New York, were among those present.

A telegraph line of forty-five miles has just been completed between Chatham, Ont., and Detroit, Mich.

MANITOBA NOTES.

Argentiferous galena and coal have been discovered at Battleford, N. W. T. The Winnipeg Sun in commenting upon the statement made by General Manager Hickson, of the Grand Trunk Railway, that he would have the Grand Trunk Railway in Manitoba within two months says: "But for the difficulties created by disal-

lowance, he could no doubt accomplish the enterprise in less than time than that, and the sooner it is done the better it will be for Manitoba, Montreal, and the Dominion generally, and the worse for those American railroads and cities that are now preying upon us. If the anxious desire professed in many quarters to prevent the United States eating us up alive were sincere, it would show itself by some practicable measure being taken to extricate us from the worst railroad monopoly under the sun—a monopoly whose despotic sway and supercilious impositions are the more intolerable because they redound to the advantage of a foreign country; instead of having at least the redeeming feature, that they help to build up Canadian interests.

The Canadian Pacific Railway has track laid 585 miles west of Winnipeg, and is laying rails at the rate of two and one-half miles a day, although it is very cold.

The Canadian Pacific Railway, it is said, will build a line from Emerson through West Lynne to connect with the Southwestern at Buffalo Junction.

MARITIME PROVINCES.

Efforts are being made to complete the New Brunswick Railway from Edmundston to Riviere du Loup. A leading New York capitalist is interested in the matter.

The steamship Cedar Grove was lost off Cape Canso, N. S., on Thursday last. Thirteen persons are missing. She was built near Sunderland, England, and was launched last September. The Cedar Grove was bark rigged, 275 feet long, 36 feet beam; depth, 23 feet; gross tonnage, 1,281.

The Halifax and Cape Breton Railway matter in dispute between the Nova Scotia Government and Dominion Government, has been settled to the satisfaction of all concerned.

The Intercolonial Railway Commission are now considering Mr. McGreery's claim of \$750,000 for extra work in Section 18.

Sheriffs' officers who were on the way to the Salmon River Gold mines, to enforce an injunction in a matter in dispute between the Lockport and Mott party, were waylaid, severely beaten, thrown into the river, and barely escaped with their lives.

The Allan Steamship Company have entered a suit in the Vice Admiralty Court at Halifax, for \$10,000 damages, civil and maritime, against the steamship Clandon, which ran into the Polynesian at the railway wharf, on Monday last.

In the Vice Admiralty Court at St. Johns, N. B., in the case of the Buenin vs. the Arklow, a decision was given against the latter, decreeing to the owners of the Buenin \$25,000, on the ground that whether her lights were properly exhibited or not, she was seen in sufficient time for the Arklow to have avoided a collision, and had the Arklow been properly managed, the collision would not have occurred.

It is said that the Spring Hill and Parrsboro Coal and Railway Company has been purchased by a Montreal syndicate.

It is said on good authority, that no negotiations have been going on, for the transfer of the St. Johns and Maine Railway, to the New
(Continued on page 990).

AMERICAN Railroad Journal.

ESTABLISHED 1881.

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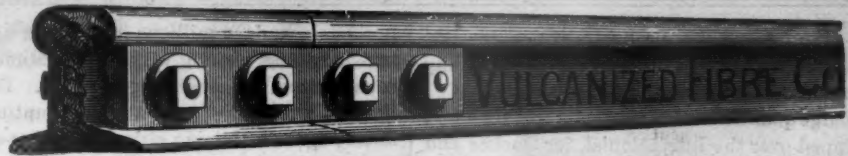
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HAS ASSUMED NEW PROPORTIONS.

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We give on editorial page our new subscription rates, which are so changed in the belief that it will not only prove acceptable to many who desire to become regular readers of the paper, but that it will meet with the hearty approval of our advertising patrons, who are rapidly filling up the pages offered to them since the improvements in the JOURNAL have been started.

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No. 21 Park Place,

NEW YORK.

(Continued from page 988).

Brunswick Railway syndicate, notwithstanding the numerous reports to the contrary.

Large quantities of Nova Scotia coal are being shipped over the Intercolonial, for Quebec and Ontario.

The Marine Department received on Friday the following telegrams from North Sidney, C. B.: "The schooner *Parole*, of St. Johns, N. B., was sunk off Canso yesterday, by the steamer *Liddendale*, of England. The *Parole* had on board the mails, and ten men of the wrecked steamship *Cedar Grove*. Both crews are destitute and will require clothing and forwarding." The department telegraphed immediately to provide clothing and transportation to Halifax.

The Dominion Salvage and Wrecking Company's steamer *Relief*, has gone to Canso to raise the *Cedar Grove*.

A VALUABLE WORK.

Mr. N. S. Garland, Esq., clerk of statistics in the Finance Department of Canada, has compiled the numerous Acts passed by the Dominion Government and Local Legislatures of Canada, relating to building societies in the Provinces of Upper and Lower Canada—now Ontario and Quebec—New Brunswick, Nova Scotia, Prince Edward Island, Manitoba, British Columbia, and all Acts relating thereto passed by the Dominion Parliament; also, the Joint Stock Company Act of 1877, and an Act authorizing corporations and institutions without the limits of Canada to lend and invest moneys in Canada; an Act relating to interest on moneys secured by mortgages on real estate; a complete and accurate table of all companies authorized by Private Act—with the amendments thereto, if any—alphabetically arranged; the Ontario Joint Stock Company's Act; an Act to confer additional powers upon Joint Stock companies, and also the Joint Stock companies' Amended Ordinance of British Columbia; the Credit Foncier Franco-Canadian; the Credit Foncier of the Dominion of Canada; an Act to repeal the duty on promissory notes, drafts bills of exchange (with the original Act retained for reference); The Canada Pacific Railway Act; with other Acts and Amendments that have been passed during the last Session of the Dominion Parliament relating to above companies; together with a brief review of the progress of Building societies and Loan companies in Canada for the past eighteen years. To which has been added Acts relating to banks and banking, compiled by Wm. Wilson, Esq., assistant law clerk, House of Commons. This work will be found valuable as a book of reference by monetary institutions, lawyers and others. Mr. Garland's address is Ottawa, Canada. "W."

OTTAWA, December 7, 1882.

The Canadian Pacific Railway.

Few persons, even in Winnipeg, have any idea of the magnitude of the work of the Canadian Pacific Railway. Its property at and around the Winnipeg station is worth \$800,000. Fifteen millions of dollars have been spent since the syndicate took hold of the road, a year and a half ago. Five millions of this sum have been spent directly in Manitoba and the

northwest, and ten millions in bringing up rolling-stock and making other preparations for constructing and operating the road. During the past season the payments, not counting the money spent in buying rails and rolling-stock, averaged \$56,000 a day. Machine shops and blacksmiths' shops are being put up at Winnipeg with all haste, and the erection of a round-house, with forty stalls, will be begun forthwith. By the end of next year it is believed the company will have 2,000 men in its employment in Winnipeg alone. These 2,000 men will represent a population of at least 8,000 souls. The storehouse in the western yard here contains supplies which cost \$200,000. These supplies embrace everything from a tin tallow bucket to a smoke-stack. Twenty-five thousand dollars have been spent this year in buying tents for the surveying parties and other officials. The rolling-stock of the company is of a very superior character, the engines and passenger-coaches being of the best and most improved workmanship and material. The surveys on the division between the Landing and Nipissing are being pushed forward with the utmost expedition. The work will be extremely heavy, but the syndicate will pursue it with all their energy and resources. There is an impression in eastern Canada, which reform journals have done their best to cultivate, that American officials are preferred to Canadians. This is not the case. The company having assumed a stupendous task, had to obtain the most efficient men to carry it on. Few Canadians were familiar with what may be called frontier railroading, and Americans, accustomed to it in the western and northwestern States, had, of course, an advantage over them. The company could hardly be expected to waste a year in training a Canadian staff. Yet to-day not one in forty of the employés is an American. All other things being equal, Canadians are preferred. This rule is never departed from.

Some merchants and settlers hailing from eastern Canada complain of the Canadian Pacific Railway rates as being higher than those of the old-established roads down below. This is, to

put it mildly, unreasonable. Virtually there are no return freights on this road. Everything is going in, and only empty cars coming out. Moreover, the cost of operating a road in a new region like this is much higher than the cost of running a line like the Grand Trunk. Take, for example, the item of coal. The Canadian Pacific Railway Company pays \$40,000 a month for coal. On the Grand Trunk coal costs \$15 per 100 miles; here it costs \$38. Altogether, operating expenses here are not less than 100 per cent higher than in the east; and rates must of necessity be higher. But it is the policy, it is in fact the interest, of the company to encourage the settlement of the country by encouraging the settler; and the rates are fixed at the lowest living figure.

On the whole, the syndicate is carrying on its great work with extraordinary enterprise and ability, and evidently with a determination to make the road a source of gain and profit to itself and to the country. Reform journals may paint it as a "hideous monopoly," but Mr. Stephen and his associates are far too shrewd to treat the merchant and settler, on whose prosperity the road is dependent for its success as a financial venture, otherwise than justly and generously.—*Winnipeg Times*.

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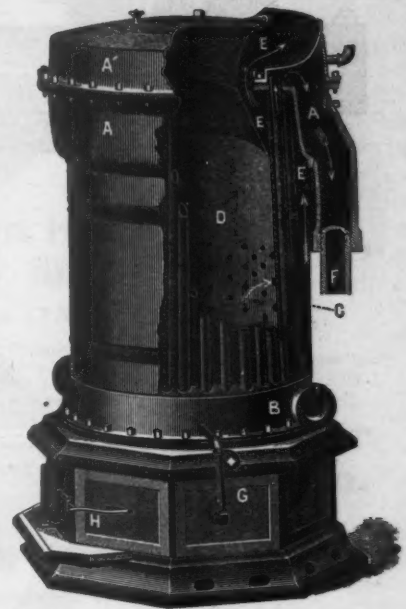
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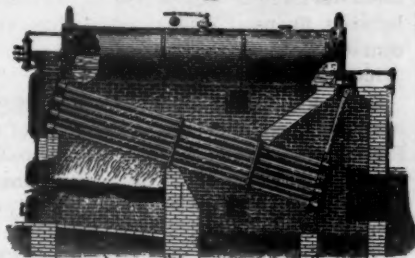
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Elevated Roads and their Construction.

DURING the public demonstration in opposition to the proposed elevated railroads in 1877, an Irishman was heard to say: "If iver they build an elevayted ralerode on Sixth avynoo, it would be underground." When we stop a moment to consider the business done to-day by these same elevated roads, it is not an easy matter to fully realize the magnitude of the undertaking, nor the extent of the opposition that manifested itself at the time of its conception, or rather at the time of its inception, so far as the public was concerned.

Few people know that for years prior to the digging up of Sixth and Ninth avenues, there had been large moneys expended and much time spent planing and surveying—surveying, not only the different routes, but also whether the expenditure of so much money as the plans and specifications called for, was warranted in the face of a large expected opposition and the present traveling facilities.

Two great problems were proposed for solution: the first was, "The best means of rapid transit for passengers;" and the second was, "The best and cheapest methods of delivering, storing, and distributing goods and freight in and about the city of New York."

The first problem was short and easy to give, but long and difficult to answer.

There was the question of volume of travel to be expected each day that could be relied upon. It was thought that unless the fares were as low as upon street railroads the volume of travel would not be sufficiently large to pay an elevated road system, and even at the same price per head the volume of business was problematical.

In 1873 the horse railroads and omnibusses running north and south carried altogether about 150,000,000 passengers, but there was reason to believe that with better facilities for

travel, together with rapid transit, an elevated railroad system would largely increase the travel.

That belief has been amply justified, for to-day the four lines of elevated road are averaging 280,000 passengers per day, equal to 102,200,000 per year, and yet the horse cars and omnibusses are filled; still this could not be foreseen in 1875, when the above problems were being energetically solved.

The cost of transportation depends upon the cost of actual operation, together with the capital invested; and to satisfy rapid transit, it was necessary to afford a cheaper mode of propulsion, a greatly increased speed, more comfort for each passenger, and the same rate of fare, or about the same rate that the street-car offers. Whereas the street-car road will cost only about \$90,000 per mile of double-track, and the cars be propelled by horses, and each passenger to run his own chances for locomotion.

It is not an infrequent saying that "the elevated roads should not have been built in the street, but that property should have been bought through the blocks, upon which to erect the road." This is very pleasing and patriotic and all that, but it wont stand the test, for rapid transit in New York is so nicely balanced between financial success and failure that it cannot afford to pay for mistakes, either in principle, policy or material detail.

Quoting from a report on rapid transit by a committee appointed by the Society of Civil Engineers, in 1875, it says, "A comparative examination of the cost of many plans has convinced your committee that the only class of elevated road likely to prove profitable is an iron structure, sixteen to twenty-five feet high, built over streets, the right of way being free, and the line being operated by light locomotives."

The report and opinion of this committee, which was composed of some of the best engi-

neers in the country, could not be lightly received, for they went exhaustively into the subject in all its phases, and have thus had great weight in molding the present elevated railroad system.

A very large part of the recommendations of the above committee was accepted and carried out in the construction of the different lines of elevated roads now built, and it is fair to presume, that had it not been for the careful and thorough manner in which these gentlemen made their report, rapid transit would not have been sprung, as it were, upon the public in such a systematic and perfect state as it was two and a half years ago.

During the construction and early operation of these roads, there were many plans conceived to improve it, which had not been presented to the committee of civil engineers, but which seemed, on subsequent examination, to embody sufficient merit to warrant a trial, and accordingly certain sections on the different lines was appropriated for these improvements.

In all, there were about six individual plans adopted for trial, each one of which was intended to accomplish some beneficial result.

Plans known as the Walton, Woolson, and Baird were perhaps the most prominent, and a little sketch of each may not be uninteresting.

The Walton plan consisted of forming a channel directly underneath the steel rails and between the cross-ties, and filling this space with cotton and sand. It is doubtful whether the cotton was employed, but the sand was, being molding sand, and was tamped into this channel with sufficient force to lift the steel rail up off the cross-ties, and hard up against the heads of the spikes. Over the top of this sand (which extended up nearly to the head of the rail) there was spread a cement of some asphalt or tar preparation to preserve the sand in place and from water. It was soon found that the cement kept the water out of the sand perfectly, for the first rain filled in over the steel rail, and at night froze up and caused inconvenient slipping of the trucks. This was soon remedied by boring holes through the guard-rails, thus permitting the water to run off. The object of this sand filling was to deaden the sound of the wheels on the rails, and so long as the rails could be supported upon the sand and off the cross-ties, it accomplished the purpose to an appreciable extent, but the constant passage of trains over it soon settled the sand down away from the steel rails, and then the effect was lost.

The Woolson plan consisted in making the cross-ties out of two pieces of timber, with a space formed between them, and so held together as to afford a slight spring, or yielding, for the trucks as they passed over. The object of this plan was to form a road-bed analogous to a surface steam road, which is sufficiently yielding to prevent the excessive jars and vibrations being transmitted to the rolling-stock, etc.

(Continued on page 994).

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(Continued from page 992).

The Baird plan consisted in filling in solid between the cross-ties up to their top surface, thereby forming a continuous bearing directly under the rail. Over this continuous bearing there was placed, first an oak plank one and one-half inches thick by five inches wide; upon this plank was put a composition pile one and one-quarter inches thick by four inches wide. This pile was composed of a layer of tar felt at the bottom, then a thick layer of gum-rubber, upon that a thick strip of lead, and this was topped off with a quarter inch strip of leather. This pile was presumed to form the jar-absorbing and flexible part of the arrangement, and upon this was laid the track-rail, composed of a two-inch strap of iron four inches wide, slightly beveled to conform to tread of wheel, the ends of each rail being cut beveling to afford a lap sufficient to prevent the click and thump incident to the present square joint. This whole structure of rail, composition pile and plank, was held down by a through taper-head bolt, let into the face of the rail, with the nut on under side. One desirable feature was accomplished with this plan, that of preventing the thump of the wheels at the joints, but the load applied by passing trains soon destroyed the composition pile, and the lead oozed out and dropped to the street below; but even had the composition stood the test, it was found that the four-inch width of rail was impractical on account of the excessive slip it offered to the wheels.

The other plans put on trial it is not necessary to explain, as they were similar to the Walton or Baird plans; it is a fact that all, with the single exception of the Woolson system, have either worn themselves out or have been entirely removed from the roads.

The fact of the Woolson road-bed system being so well sustained, and having heard it so highly spoken of, prompted a further investigation and a more extended explanation of this system. The accompanying cut will be of interest.

It is very apparent that most of the patent devices applying to the elevated roads are not devised by practical or railroad men; consequently they labor under a disadvantage that is fatal to them. Mr. Woolson, who is a thorough-going, practical mechanic, has undoubtedly given the road-bed subject a great deal of time and careful thought, as would be quite natural from the fact that his father was one of the earliest locomotive engineers in this country, and a thorough mechanic of high standing, as was his father before him. Mr. Woolson, while connected with the New York Elevated Railroad, decided, in his own mind, that it was a fatal mistake, both theoretically and practically, not to afford some relief to the riveted iron structure, and also some relief to the rolling-stock from the constant hammering and vibrations incident to the passage of trains, whether slow or rapid, loaded or empty. The more he watched the structure, the more convinced he became, until finally he consulted his chief engineer, Walter Katté, and then brought the subject before Mr. Charles E. Emery, and subsequently had a long discussion with the late Alex. L. Holley, who had given a

great deal of thought to the subject, which will be found published in that gentleman's large and valuable work on "American and European Railroad Practice," in which he had had this very subject under review; and finally Mr. Woolson's attention was called to a paragraph in the report of the committee of engineers to the Society of Civil Engineers, in which they expressly suggest that in addition to the adoption of paper wheels for the car-trucks, there should also be introduced elastic bearings under the rails, which would afford the necessary flexibility to the road-bed, and thus absorb the shocks and vibrations.

Another good effect on the elevated structure secured by Mr. Woolson's system of road-bed is the greatly increased distribution of load. This is arrived at by his peculiar method of bolting the members together. For instance, it will be noticed, by reference to the cut, that the guard rails, which, in his case become guard beams, lie along each side of the steel rail in the ordinary way, but yet come directly over the opening formed in the compound tie. These guards are bolted to the upper member of the tie only, having no bearing or connection with the lower member. The result is that as the load is applied to the track at any given point, it necessarily deflects the upper member of the tie accordingly, but, as said member is bolted fast to the four guard-beams, it can only deflect in exact proportion to the said guards, and, by their so deflecting, they must necessarily bring a load to bear upon contiguous cross-tie members and thus in turn distribute the load still further through the guard-beams; and as Mr. Wm. Shunk, late chief engineer of the Metropolitan Elevated Railroad, was heard to say, the action on Mr. Woolson's road-bed system is just the difference between a deer's foot and a snow-shoe. In other words, with the Woolson system there does not begin to be that concentrated load on the structure that the old system must necessarily permit.

Another feature in the construction of the Woolson road-bed that is thoroughly practical and is not apparent at first glance, is this: On the old system one of the primary functions of cross-tie and longitudinal guard-rails is to tie the whole top of the structure together. This is very necessary, especially in tall column and single-track construction.

As Mr. Woolson is as familiar with laying the old track as with laying his own, what he says will have weight. He explains, first, that it is utterly impossible to get timber for cross-ties cut exactly of the same thickness; neither is it possible to have the top chord of the trusses perfectly level and true. That being the fact, it is necessary in laying the old system of road-bed, to adz such ties as are too thick down to the thinnest; *this in itself is a very bad thing to do*, aside from the extra labor of adzing, because it opens up checks in top of the timber to rot it out; and secondly, it is not possible to adz a lot of ties down perfectly true, even in the length of a twelve or fourteen foot straight edge. Consequently when the ties are bolted down upon the truss, their top faces are not so true but what the steel rail will rest upon some and not upon others; then what is worse, the bolting on of the guard timber lifts the

scant ties up off the truss, so that instead of having a road-bed that is thoroughly tying the structure together, it has a large proportion of the road-bed in actual suspension between the guard timber above and the truss chord below. Whereas, with the Woolson road-bed the result is diametrically different, as will be seen without much explanation. The cross-ties being formed of two pieces, placed one above the other, with an intervening space or slots, if the ties should not be of uniform thickness (and they are not any more than the ordinary tie) it makes no difference whatever, and there is no adzing necessary, because the shallow ties will be expanded by the guard beam bolt sufficient to bring its upper face snug up to the under side of the guard timber. This timber, it is readily understood, is very true in all cases; hence the steel rail has a perfectly level and true bed to rest upon, and there are no ties held in suspension, consequently the whole top structure is tied together thoroughly and perfectly.

The section that Mr. Woolson put up two years ago, although erected in great haste, stands the racket like a veteran and has enabled him to perfect the system for future work.

There are many who can remember the different attempts made, both in this country and in Europe, in years past, to lay a road-bed on solid rock or built up masonry, but in every individual case it has failed of being a practical road over which to lay a steel rail; hence at the present time a yielding ballasted bed is looked upon as the only satisfactory construction, and Mr. Woolson claims, with the best of reason, that the builders of the elevated roads have repeated the very same error in not affording a flexible bed in accordance with the dictates of good practical knowledge, and agreeably to the recommendations of the committee of civil engineers above referred to.

It must cost more to build the Woolson road-bed at first, but it certainly will more than pay in the long run, and if it should be applied to any of the elevated roads in this city, it should be upon the Third Avenue and Bowery line, which requires some relief at once, even at this early day of its existence.

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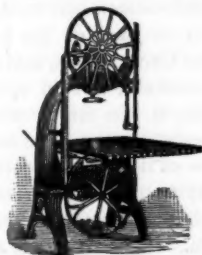
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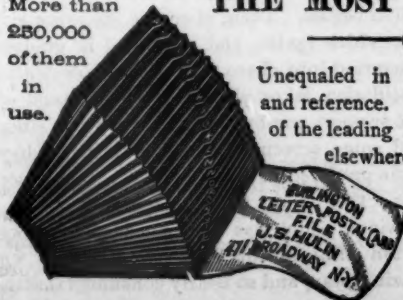
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IMPORTANT ANNOUNCEMENT TO INVENTORS.

THAT department of the *AMERICAN RAILROAD JOURNAL* which contains descriptions of new inventions properly coming within its range of subjects, is regarded with great notice and favor, particularly by those directly interested in learning what the latest applications of mechanical ingenuity in railroading are, and by those who have produced inventions which they desire to make as widely known as possible.

The large and widespread circulation of this paper, its prestige as the oldest railroad journal in the world, and the weight attached to its contents by the general consent of leading railroad men in all countries, give such value to its carefully prepared descriptions of new machinery and appliances as cannot be found outside of its columns.

The interest manifested by inventors in supplying us with information of their doings, and the eagerness with which this is received, encourage us to give an increased attention to that department of this paper treating of new inventions.

We therefore repeat our invitation to all persons who have produced what they regard as improvements coming within the range of railroad operations, to communicate with us promptly regarding the same.

All matter sent us will be thoroughly examined and considered, and no inventions in our opinion likely to be practicable and useful will be passed over without receiving due attention from us.

Lists of Patents for Invention Relating to Railways, Manufacturing, Mining, Machinery, Etc.

BEARING DATE OF DECEMBER 5, 1882.

- 268,383. Recording Pressure-Gage: Harris Bernstein, Titusville, Pa. Filed Mar. 16, 1882.
- 268,385. Pile of Iron: Henry W. Bohntreager, Pittsburg, Pa., assignor to Carnegie Brothers & Company, (Limited,) same place. Filed May 3, 1882.
- 268,386. Car-Coupling: George W. Butler, Knoxville, Tenn., assignor of one-half to William B. Shoemaker, same place. Filed July 15, 1882.
- 268,396. Car-Coupling: Thomas C. Garlington, Dadeville, Ala. Filed July 14, 1882.
- 268,412. Smoke-Consumer for Furnaces: Thomas Kirkwood, Chicago, Ill. Filed Aug. 16, 1882.
- 268,415. Pile-Driver: Daniel Knowles, Norfolk, Va. Filed July 16, 1882.
- 268,419. Utilizing Exhaust-Steam: Harvey T. Litchfield, Hull, and David Renshaw, Cohasset, Mass. Filed Aug. 1, 1881.
- 268,423. Feeding Air to Furnaces: Charles McWilliam and Emile Loiseau, Montreal, Quebec, Canada, assignors to William Alexander Campbell and George Hutton Patterson, both of same place. Filed September 15, 1882.
- 268,446. Furnace for the Manufacture of Iron and Steel: Charles Adams, Cleveland, Ohio. Filed Apr. 22, 1881.
- 268,457. Railroad-Track Bolt: William C. Brown, Logan, assignor of one-half to J. F. Wheeler, Monday, Ohio. Filed Aug. 10, 1881.
- 268,463. Friction-Clutch: Francis O. Deschamps, Philadelphia, Pa. Filed May 1, 1882.
- 268,476. Traveling Contact for Electric Railways: Joseph R. Finney, Pittsburg, assignor to himself and Thomas B. Kerr, Allegheny City, Pa. Filed Aug. 26, 1882.
- 268,477. Single-Trunk Compound Engine: John Fish, Summit, N. J. Filed Feb. 24, 1882.
- 268,484. Wheel-Fender for Railway Cars: Aiken Haman, San Francisco, Cal. Filed Sept. 4, 1882.
- 268,498. Car Basket-Rack: John Kirby, Jr., Ludlow, Ky., assignor to Post & Co., Cleveland, Ohio. Filed July 11, 1882.
- 268,501. Freight-Car: Pierre Lacroix, Chicago, Ill., assignor of one-half to David Bourgeois, same place. Filed Oct. 8, 1882.
- 268,504. Boiler-Scraping Attachment: James M. Lakanan, Grass Valley, Cal. Filed Oct. 2, 1882.
- 268,522. Rotary Steam-Engine: Friederich Muller, Elizabeth, N. J. assignor of one-half to Mathew Macdougall, same place. Filed Oct. 5, 1882.
- 268,523. Electric Device for Operating the Throttle-Valves of Steam-Engines: Josiah Neabitt, Toronto, Ontario, Canada. Filed Aug. 29, 1882.
- 268,543. Car-Starter: George P. Salisbury, New Haven, Conn. Filed Aug. 18, 1882.
- 268,571. Leak-Stopper for Boiler-Tubes: William F. Thompson, San Francisco, Cal. Filed Aug. 15, 1882.
- 268,579. Car-Axle Box: Isaac P. Wendell, Philadelphia, Pa. Filed Apr. 3, 1882.
- 268,586. Method of Propelling Cars: Adam Wingard, San Francisco, Cal. Filed Oct. 21, 1881.
- 268,591. Baggage-Check: Thomas Abbott, New York, N. Y. Filed May 3, 1881.
- 268,592. Sectional Steam-Boiler: Daniel L. Adams, Pottsville, Pa. Filed May 15, 1882.
- 268,603. Device for Feeding and Watering Cattle in Cars: Hugh Baines, Toronto, Ontario, Canada. Filed Nov. 7, 1882.
- 268,604. Cattle-Car: Hugh Baines, Toronto, Ontario, Canada. Filed Nov. 7, 1882.
- 268,607. Bolt and Nut Lock: Charles E. Bell, Greenfield, Ohio. Filed Oct. 11, 1882.
- 268,610. Car-Brake: George F. Bond, Troy, N. Y. Filed Sept. 15, 1882.
- 268,625. Lid for Car-Axle Boxes: Charles Collier, Hannibal, Mo., assignor of two-thirds to Willard T. Block, same place. Filed May 16, 1882.
- 268,631. Air-Brake Pump for Locomotives: David J. Dampman, Philadelphia, Pa., assignor of two-thirds to William H. Bilyeu and John Ambler, both of same place. Filed Feb. 13, 1882.
- 268,633. Car-Coupling: Stephen L. Davidson and Chester L. Davidson, Virden, Ill. Filed May 13, 1882.
- 268,660. Car-Coupling: Grexshon V. Greer, Wilmington, Del. Filed Sept. 7, 1882.
- 268,677. Stock-Car: James Howard and Hugh Baines, Toronto, Ontario, Canada. Filed Nov. 7, 1882.
- 268,680. Car-Truck: Joseph Huson, Rochester, Ky., assignor of one-half to William F. Shrum, same place. Filed Aug. 18, 1882.
- 268,683. Car-Brake: Will R. Johns, Rockford, Ill. Filed May 19, 1882.
- 268,715. Pneumatic Railway and Car Therefor: Elias P. Needham, New York, N. Y. Filed Feb. 24, 1882.
- 268,726. Car-Brake: William B. Quigley, Boston, Mass. Filed Sept. 26, 1882.
- 268,735. Car-Signal: Louis H. Seel and Jesse M. Smith, Anderson Court-House, S. C. Filed May 31, 1882.
- 268,739. Car-Coupling: John T. Sibley, St. Louis, Mo. Filed Aug. 16, 1882.
- 268,754. Momentum Car-Brake: William B. Turner, New York, N. Y. Filed Aug. 2, 1882.
- 268,758. Car-Roof: John C. Wands, Nashville, Tenn. Filed Sept. 9, 1882.
- 268,761. Railway-Switch: Charles H. White, Boston, Mass. Filed May 24, 1882.
- 268,766. Car-Coupling: William Zaehring, New Orleans, La. Filed Oct. 13, 1882.

Woodwork that will not Burn.

In a London paper is published a letter from Mr. F. H. Gossage, who makes some very important statements. He says:—"I find that painting woodwork of any kind with several coats of solution of silicate of soda, and finishing off with a mixture of this solution and sufficient common whiting to make it about as thick as ordinary paint, is a most excellent protection against fire. Wood treated in this way will not take fire from mere contact with flame; it requires to be heated till destructive distillation begins. Then, of course, gases are given out which ignite, and the wood is gradually converted into charcoal, but until destructive distillation takes place the coated wood will not support combustion. A few years since I had some screens made like ordinary doors, some prepared as I have described, and some not. They were then placed over a fire of shavings, which was kept constantly renewed. In ten minutes the unprepared screens were blazing away, and so nearly consumed that they

had to be supported by an iron bar. The flames continued to lick the prepared screens for 30 minutes before the distillation commenced. After forty-five minutes the coated screens were still intact, and able to support themselves; and an hour, although pierced in many places with holes, they held together, and when the fire was removed they did not continue to burn. This was a splendid success, and I still have the remains of the screens. The experiments were made at my suggestion, for the managers of the Liverpool Philharmonic Society, and the woodwork of their splendid hall at Liverpool was treated in this manner. I am sure a good deal might be done with this simple and inexpensive process to reduce the possibility of fires, especially in public buildings, theatres, etc., for, if the woodwork was thus treated, draperies and scenery would burn away before the heavy timberwork of the structure would take fire."

The Unchanging Mineral.

For centuries there has been known a curious mineral that seemed half wool, half stone. It was found in all parts of the known world, even before the Christian era, and it was found in the new Americas, but in spite of all its widespread fame it was merely curiosity until within the present century. The ancients picked small pieces of it out of the rocks, and even succeeded in spinning it into threads and weaving the threads into garments that would neither decay nor burn. It remained for an American to bring this mineral wool, this unchanging Asbestos, into new uses and new forms.

The commercial value of any product now depends wholly on its ability to meet certain scientific requirements. Coal will make steam, and steam makes light, heat and power. So Asbestos meets certain requirements in the arts that have to do with heat. Asbestos is the great heat register. It is indifferent to temperatures in which the metals melt like wax. It is unchanged at a white heat, and yet it can be made into a thread or a tissue-paper. It is a refractory mineral that can be felted, that can be made into mill-board, into fabrics, into paints, cements and ropes. The moment you know what a thing can do, or, better, how it behaves under certain circumstances, you see its uses. The ancients made fabrics of Asbestos and then threw them into the fire, where they would not burn, and thus they played on the ignorance of the people. To-day we take this same indestructible mineral and use it to cover our roofs, as a lining for steam cylinders, as a protection lagging for steam pipes and boilers, as a fire-proof paint, and for a hundred other things where it is important that heat should be saved or made use of. With a few exceptions, all the modern uses of Asbestos are the inventions of Mr. H. W. Johns of this city. The larger part of all the different Asbestos materials and applications of Asbestos used in this country are made by the H. W. Johns Manufacturing Company, of New York. So it happens, as with many other materials, that the curiosity of one century becomes the useful thing of this.

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